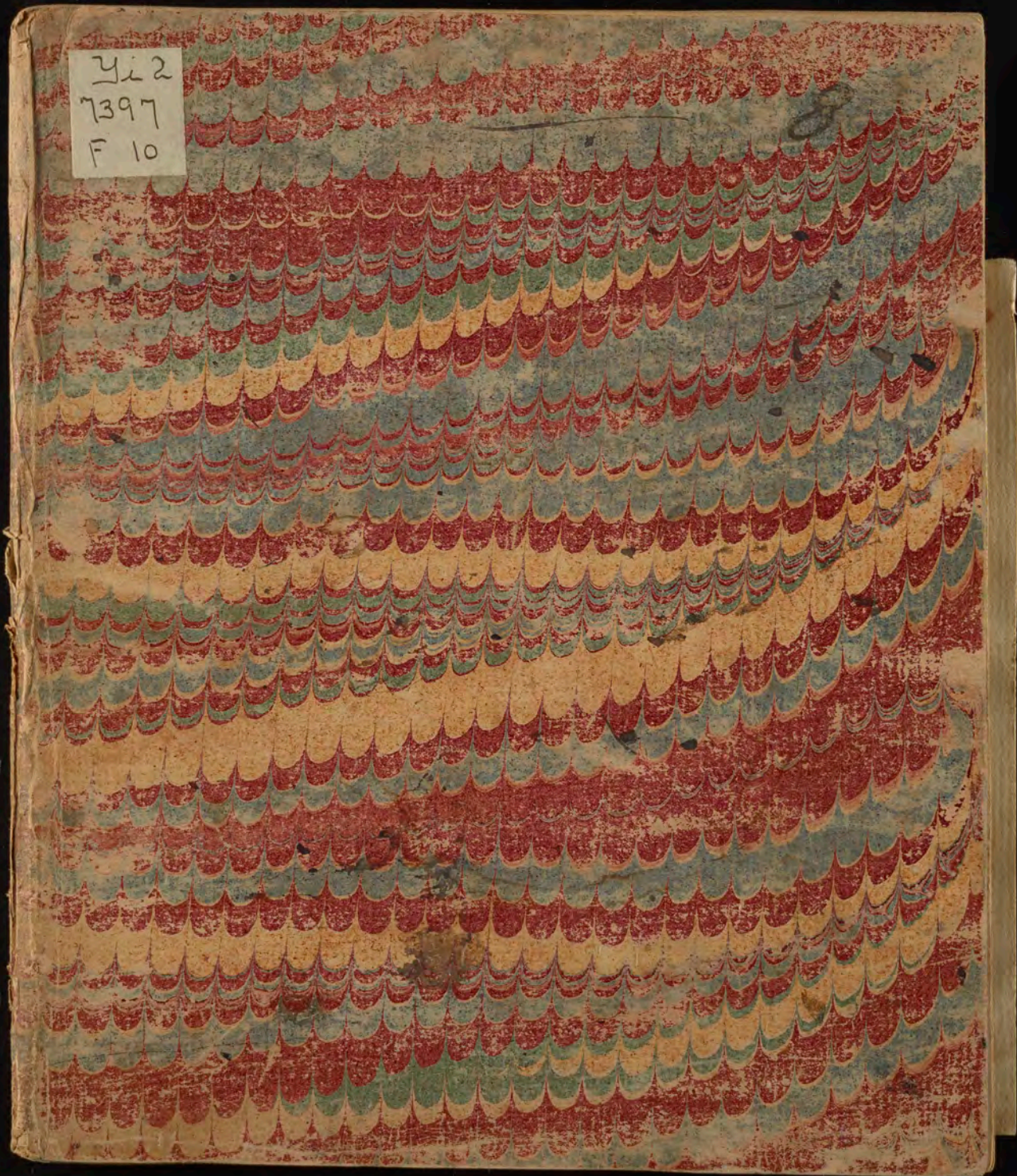
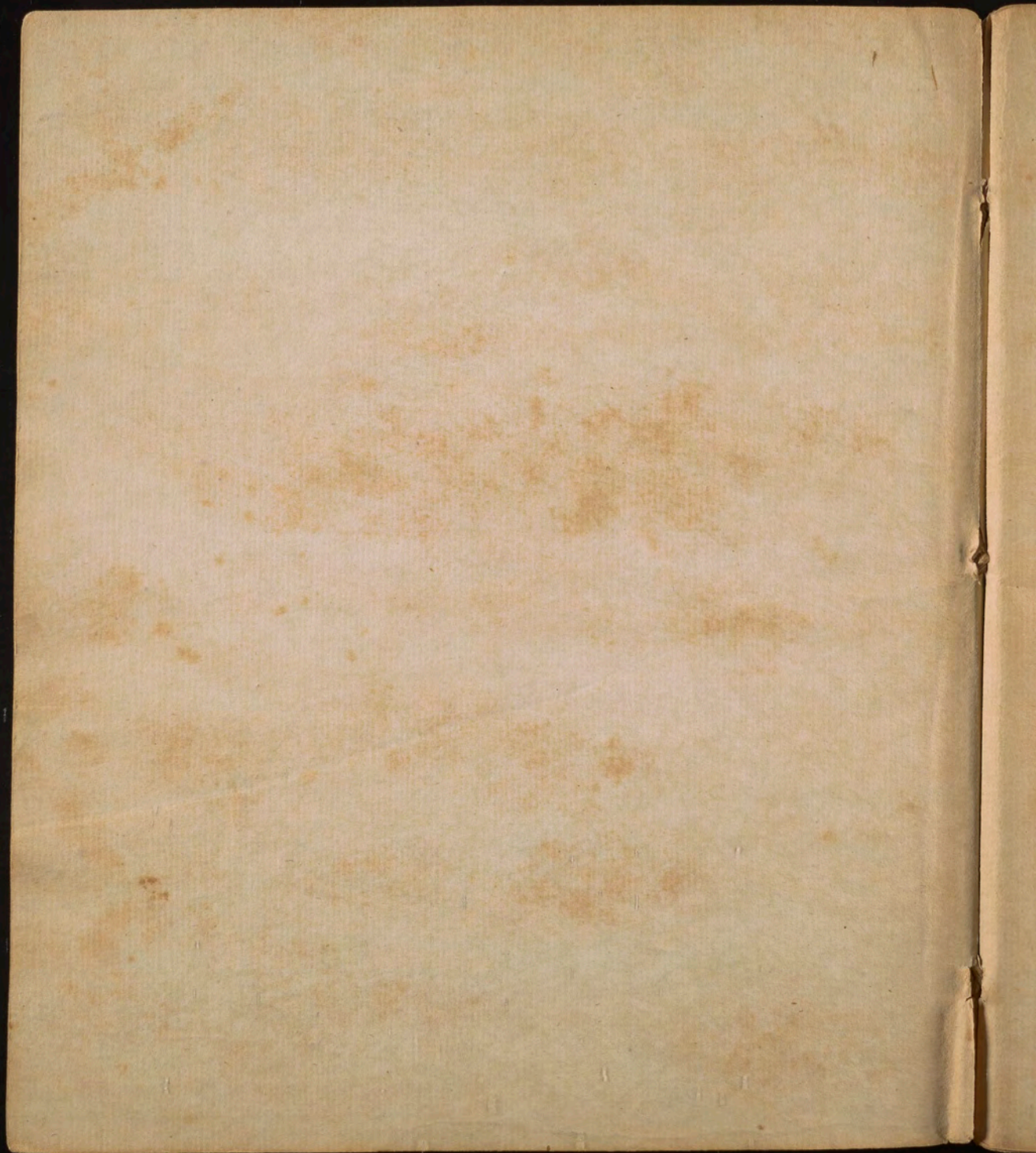


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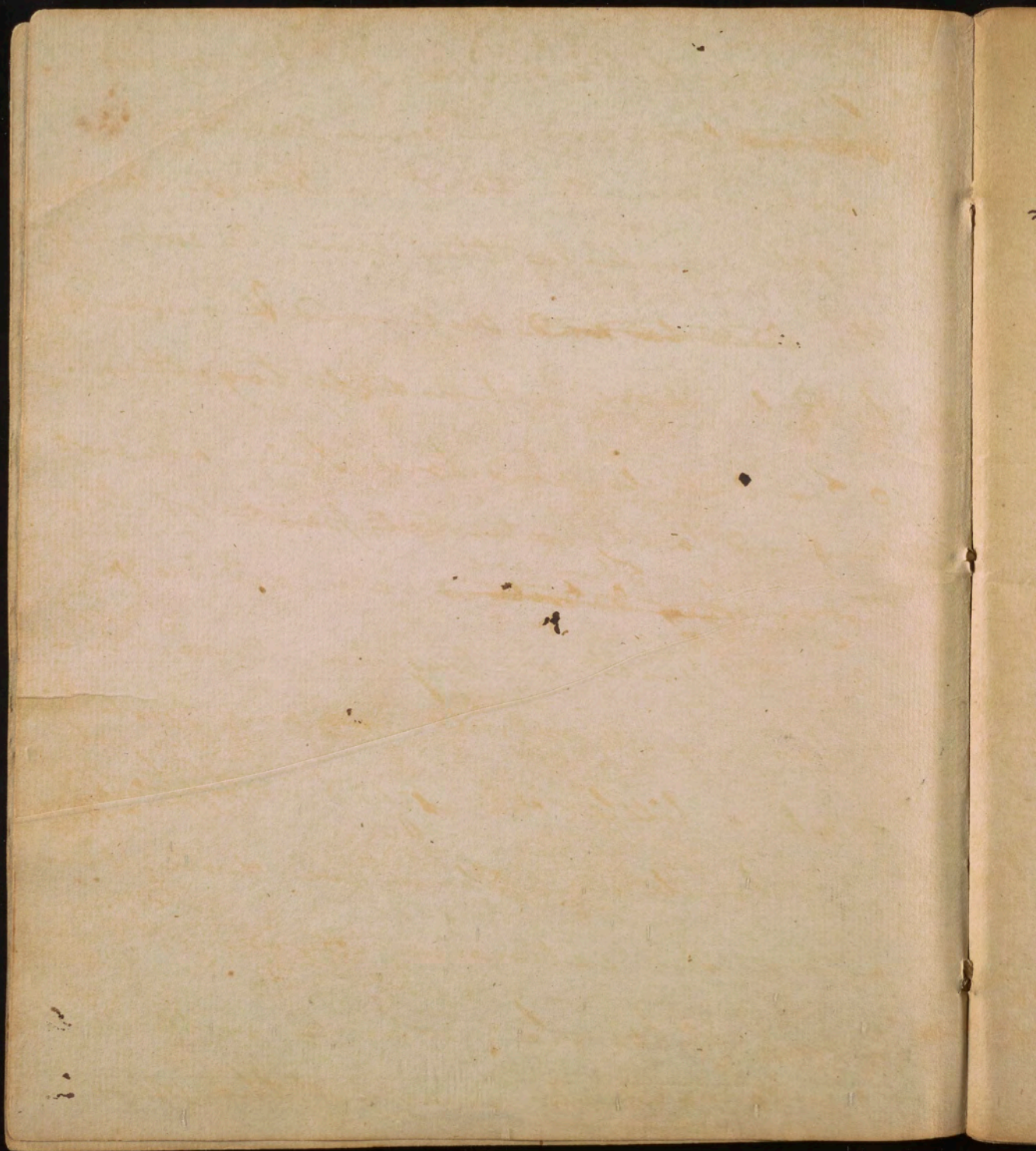




Touch cont?—

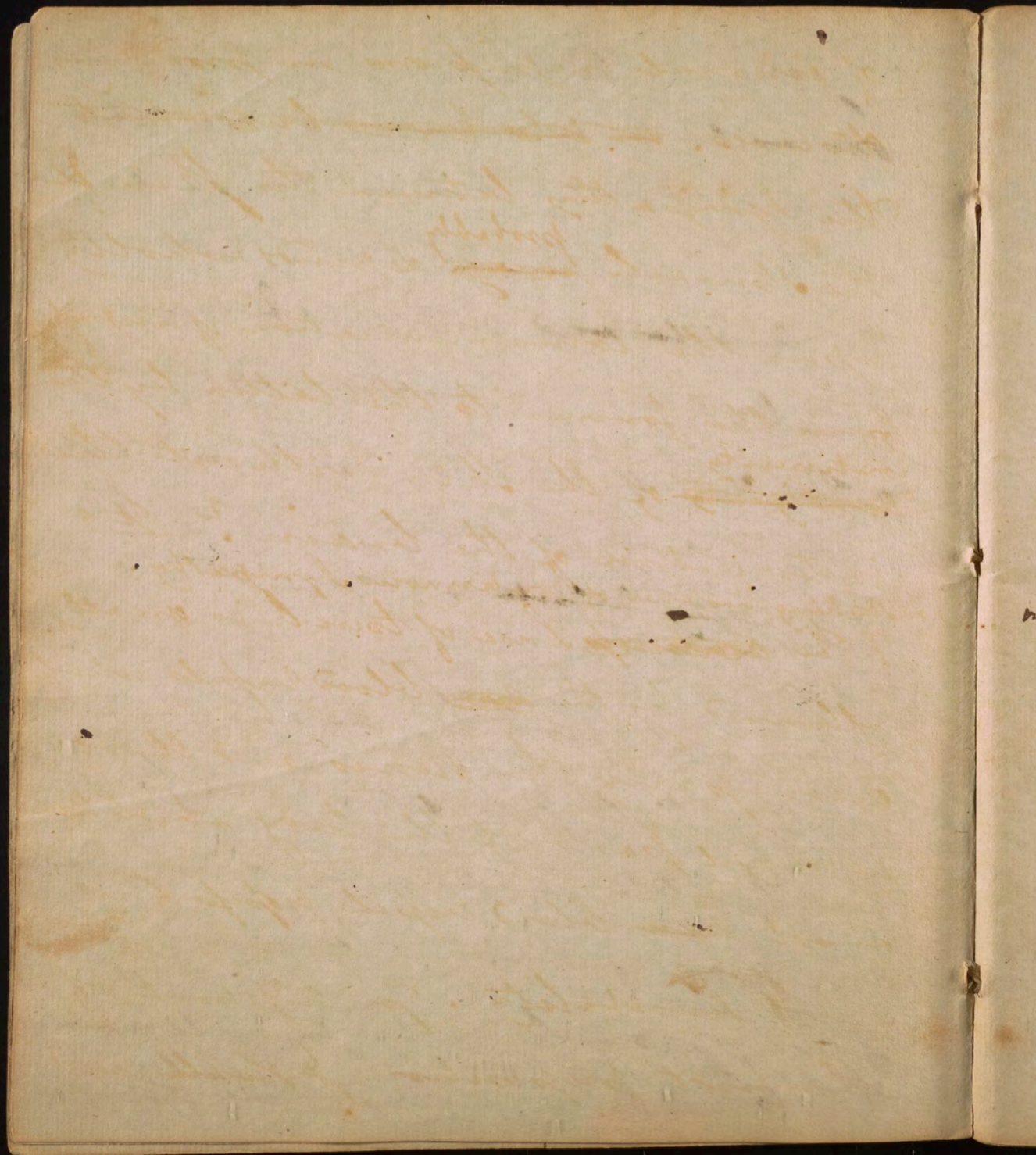
Taste 331.

Smelling 340



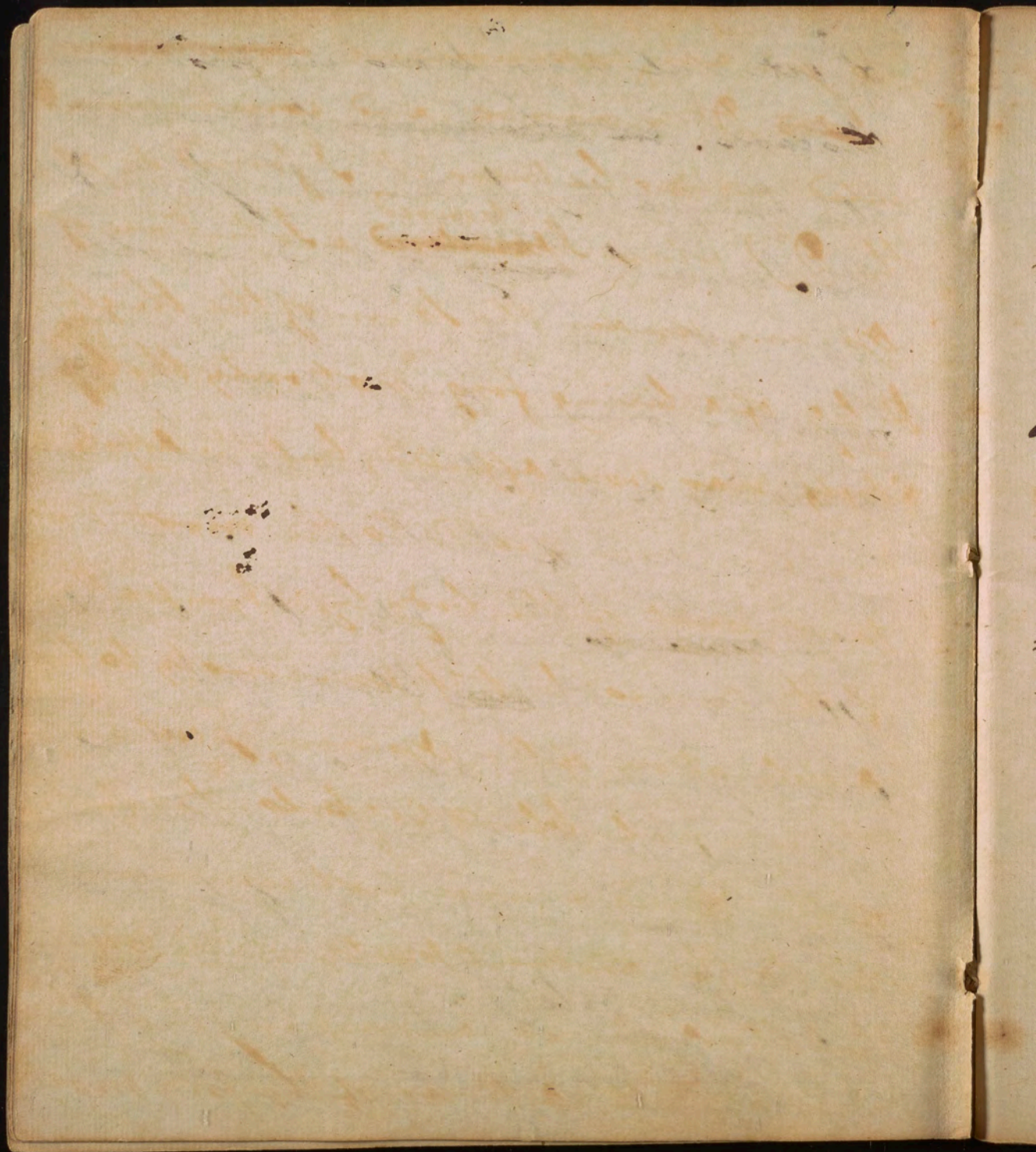
^{viz. Hairs}
 They defend the surface of the body from
~~injury~~ Attrition in some parts, - in-
 part warmth to it in others, - and
 in all - perhaps they serve to connect
 the ~~cuticle and~~ outward & inward
 Cuticle more intimately together.

6 The Cuticle and true Skin are not
 confined to the external parts of the
 body. ^{They are} ~~The Cuticle~~ extended into the
 Arms - Uterus - Vagina - Mouth -
 Pharynx - nostrils - ~~and~~ and probably
 exists a little diversified in the stomach
 and bowels. — Hence we derive new
 and more extensive views of the
 Sense of touch, which will enable
 us to explain many of the operations



of external impressions in producing
 diseases. ~~as we know but what~~
 the sympathy between the skin &
 the stomach ^{probably} ~~may~~ depends wholly
 upon the communication of impressions
 from the former to the latter by the
 continuity ~~continuity~~ of the skin, without the
 intervention of the brain? It is
 a striking instance of continuous sympathy.

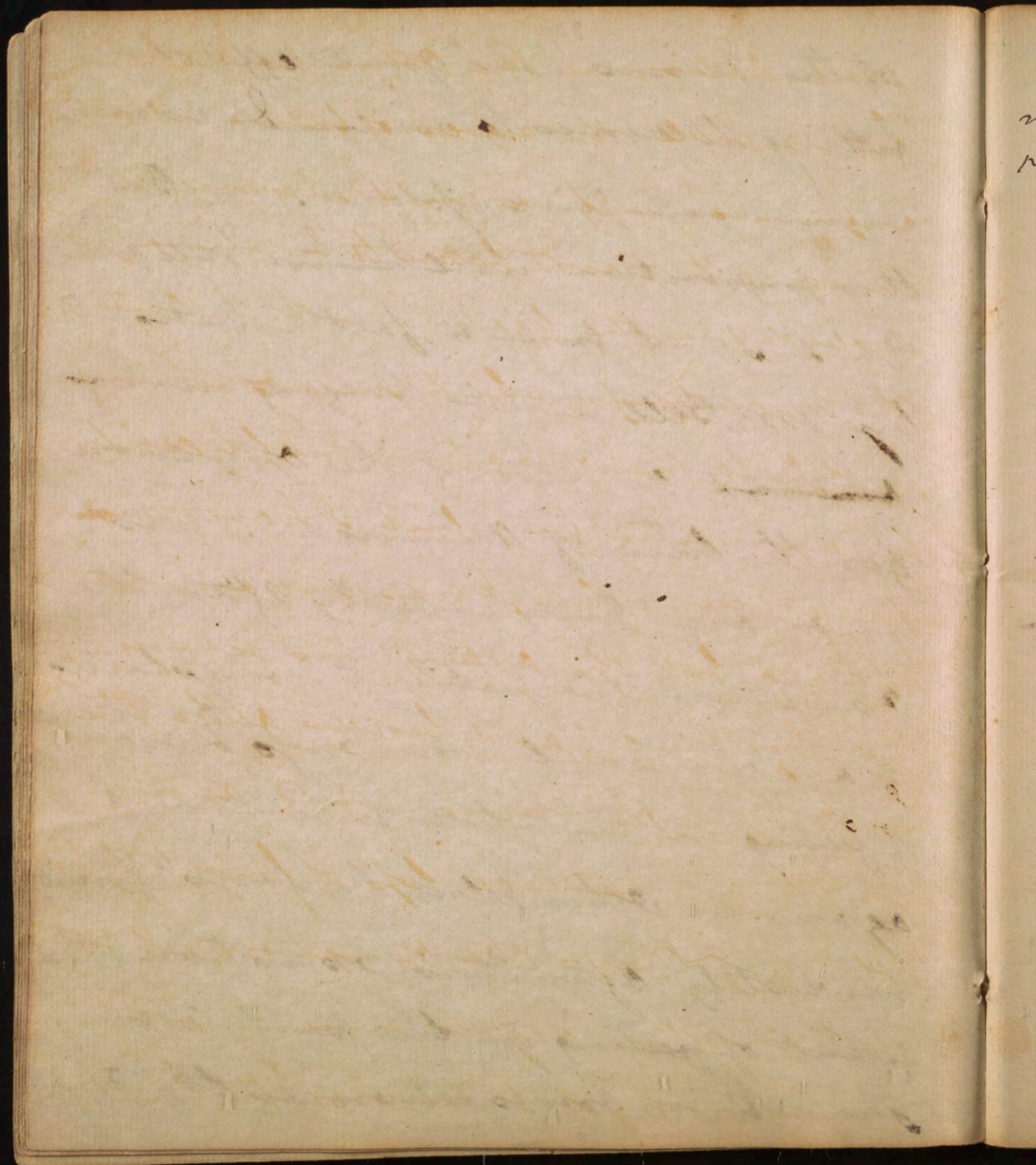
7 The ~~continued~~ sense of touch is greatly
 influenced by the ~~the~~ blood vessels which
 accompany the Nerves, and those
 external parts of the body which have
 most ~~many~~ blood vessels, possess the
 most sensibility. In support of
 the first proposition I shall read



Act of an 318 made by
to you an experiment ~~made by~~
~~Dr. Monro~~ Dr. Monro, and communi-
-cated in his lectures. "I found (says
the D^r) when I ~~applied~~ ^{poured} a solution of
Opium under the skin of the thigh
& leg of a living frog, not only the leg
itself was soon affected, but the affection
was communicated to the most Dis-
-tant part of the body by a Sympathy
of the Nerves; but if previously to the
application of the Opium, I cut across
the femoral blood vessels, the effects
of the Opium were not communi-
-cated to the distant parts, which proves
that the Arteries accompanying the
Nerves, or the Arteries of the pia mater

[The page contains several lines of extremely faint, illegible handwriting, likely bleed-through from the reverse side.]

of the Nerves, have^a great effect in fitting the Nerves to receive, & communicate impressions". — But this proposition will receive still greater support from a fact mentioned by Mr Bell in his history in his ~~second~~ account of the operation for the cure of Anæsthesia. His words are "Immediately after the operation, the patient complains of an unusual numbness, & want of feeling in the whole member" and again in other place, he says "Immediately after this operation, the want of feeling in the part is very great, & in proportion as the



circulation in the other part becomes
 more considerable, the degrees of feeling also
 augment. — If we could suppose the
 veins of the parts below to be always
 included in the ligature with the artery,
 the numbness which succeeds imme-
 diately to the operation might easily
 be accounted for; but I have known
 it happen, when I was certain that
 nothing but the artery was secured by
 the ligature; and besides, altho' the
 knot upon the veins would account
 for the immediate loss of sensibility
 which follows the operation, it w?
 not in any degree serve to explain
 the return of feeling on the circulation

✓ To this I answer that the blood
vessels are dry no means forward destitute
of blood in persons who have ~~lost~~ ^{lost} blood
offensive, but admitting this to be
the case, may ✓ turn over to left hand
page.

being again restored." To these striking facts I might add, that insensibility in the skin is always proportioned to the greater or less fulness and tension of the blood vessels which terminate in the surface of the body. ~~This I shall~~

~~prove hereafter in our path the pathology of the Malignant Diseases.~~ There

is only ^{one} seeming exception to this remark & that is the case of touch which is increased ~~by~~ ^{by} fasting, ~~but here~~ ^{in which case there is said to be the quantity or} ~~the stimulus of~~ ^{the stimulus of} blood. ~~It is in an~~ ^{the stimulus of} ~~it appears to be~~ ^{it appears to be} ~~exclusive from the~~ ^{exclusive from the} ~~reaction~~ ^{reaction}

~~It~~ may there not be such

V, ~~It is not~~ an accumulation of
Excitability in the extremities of the nerves
induced by the Abstraction of the Stimulus
of Aliment. ~~It is~~ and blood as to render
them more easily moved by other Stimuli.

- li^a -

of the Stimulus of Aliment, and
 probably the reason why
 hence it increases the sense of touch.

That
 - ~~is proving~~ the sensibility of different
 external
 parts of the body is greatly influenced
 by the quantity or force of the blood
 which
 accompanies the nerves, I judge
 from the peculiar sensibility of
 the ~~breasts~~ ~~the~~ breasts of females,
 & the genitals - and lips of both sexes
 in each of which there is a profusion
 of blood vessels. In the lips - the ^{color of the} blood
 is visible, - and every one knows how
 easily and plentifully it is effused
 from the most trifling wounds. -

8. It ^{I said formerly} ~~will appear hereafter~~ that

[Faint, illegible handwriting in cursive script, likely bleed-through from the reverse side of the page.]

a different set of nerves ³²³ are employed to convey the sensations
~~the same set of nerves from the common~~
of taste & smell - & ~~the same set of nerves~~ perhaps of light
& hearing to the brain, ~~as~~ ^{from} ~~totally~~
~~different~~ than which serve the same
organs for the common purpose
of sensation. I suspect something
of this kind takes place in ~~the~~ ^{quite of}
the organs of touch as perhaps a peculiar
or specific insensibility, such as the
fingers - lips - ~~the~~ ^{and} female breasts.
~~and~~ It is certain that it takes place
in the organs of generation. Of this
Mr Hunter mentions a remarkable
proof. He tells us that he knew a
gentleman who had the glands

✓ I shall hereafter mention several
Other instances of the translation of
Specific sensation.

In who was deaf, the
Dr. Joseph Horn Boeckmann, formerly
~~an American physician that sensation in~~
~~the ear is of hearing~~ who
~~was transferred~~ transferred from
the ear to every part of the body.

Penis completely destroyed by a
 mortification almost as high as the
 Union of the Penis with the Pubis; &
 at the edge of the old skin, at the root
 of the penis where the nerves ter-
 minated, was the peculiar sensation
 of the glans penis, and the sensation
 of the glans itself, was now only com-
mon sensation; therefore the glands
 has different nerves, and those
 for common sensation may come
 thro' the body of the penis to the
 glans. " ✓

So much gent. for the structure
 of the organs of touch in general,

V and by the small ^{fibres} ~~concentric~~ which
~~are~~ are formed in ~~concentric~~ layers
upon the extremities of the fingers.
- An inequality of Surface is thus given to
them, which increases their Possibility.

I proved

9th to remark that the extremities
 of the fingers possess ^{the} ~~the~~ sense of
^{the qualities of} distinguishing by contact ~~with~~ ex:
 = train
 = ternal objects in a much higher
 degree than any other parts of the
 body. [For this they are fitted by an
 uncommon smoothness of the ~~skin~~
 in w. the nerves terminate ~~of which~~
 = ~~the nerves terminate of which~~
 These nerves ~~are~~ which terminate in the
 by the nails placed behind them, and
 papillae of the fingers, are defended =
~~the~~ [Perhaps the nails serve the
 further purpose of increasing sensation
 by a species of vibration] The nerves
 in the fingers ^{this certain}
 are said to extend themselves ~~into~~
 in
 papillae every ~~one~~ act of touch.
 but these papillae have never been

ly
V: 10: To encrease the sense of touch to
the highest degree, it is wisely distributed
this, ^{a thumb & four} ~~five~~ fingers on each hand, &
the perceptions are most acute when
the whole of them are employed in sensa-
tion. This I ^{shall mention} ~~mentioned~~ as a reason for
using four fingers when practicable
in feeling the pulse.

demonstrated. Even Dr Haller who
~~often~~ mentions them very confidently
 [in his 423 & ^{of his first lines} seems to infer their
 existence only from the analogy of
 the tongue where they have been
 seen, and where we shall say hereafter
 they are necessary to the ~~performance~~ ^{sense of taste}.
 Malpighi is the only Anatomist who
 pretends to have seen the papillae in the ends
 of the fingers. - V

By 11. That the sense of touch should be correct
 and perfect, it is necessary that the brain
 should be free from ~~disturbance~~ compression,
 and that so there should be no obstruction
 on the nerves which connect the brain with
 the fingers, - that the circulation of the

which
- That the ~~impressions~~ of the body touches
should not be too violent, or too
gentle - & that it should be continued
for some time - and

As to common impressions. Amos D. Haller
relates an instance of a man who could walk
bare footed, on hot iron.
Next to the fingers, the lips possess
a high sense of touch. This is obvious
in children who always put the things they
handle to their ~~mouth~~ ^{lips in order} to assist them in ^{acquiring a}
~~the~~ knowledge of their properties. This sense
of touch in the lips is ~~lost~~ ^{impaired} by disuse from
our employing our fingers, exclusively in
after life. ==

blood to the fingers should be easy & plentiful,
that the temperature of the fingers should
neither be ~~too~~ hot, or cold beyond a cer-
tain degree. ~~that~~ ^{that} the extremities of the
fingers should neither be denuded, nor
covered with too thick a skin. The latter
tends very much to lessen the sense of
touch, as we see every day in labourers,
more especially in Smiths who often burn,
~~the skin~~ and thereby render callous the entire
extremities of their fingers. ~~the~~ ^{feels} The
~~feels~~ of the feet from use sometimes become very ^{insensible} ~~sensible~~.
I mentioned formerly the effects of
habit on the sense of touch in common
It is from habit it derives its superiority
with the other senses. — It acquires in
the toes, in the fingers. —
this way, and more especially if it be
deprived of the aid of other senses, an ac-
-cacy that goes almost beyond conception.

V m^{re} de Cat ^{relates} ~~relates~~ the history of a
man who could distinguish every card
in a pack by the sense of touch.

Mr Boyle relates a story of a ^{blind} Organist
 who could distinguish colors & even
 black letters by his fingers. He always
 succeeded but after fasting a while, &
 when the weather was not very dry.^v -

The readiness and acuteness with which
 Physicians distinguish the different
 States of the Pulse ^{by means of their fingers} is the effect of habit,

~~and~~ can neither be irritated, nor
 comprehended by persons who are
 not accustomed to it. - To render the

sense of touch as acute as possible in
 all cases, it is necessary that the brain
 should be preserved free from ~~fluctuations~~
 the effects of impressions upon all the
 other senses. - It will therefore be

✓ Its correctness is very much increased by 1 putting the hands in warm water. 2 by previous rubbing on a rough body. It acts by exciting ~~the~~ the extremities of the nerves. 3 by motion. ~~that is to say~~ they kept a fold of water felt most sensibly by moving hand backwards & forwards in it. The accuracy of the sense of touch in

Distinguishing numbers is acquired by habit. Thus we know from experience that a marble when felt in the hand by two fingers - is single - but if we cross the fingers - then - we have a ~~new~~ perception of two marbles.

✓ ~~we~~ ~~are~~ ^{enabled} to learn the thickness of bodies by it without the assistance of our eyes, but not the comparative thickness of one body more than another. This fact is taken notice by ~~Mr~~ ^WWiley in the Ind Repository. But may not this be owing to a difference in the vibrations of the bodies felt, & may not the ears assist in hearing these vibrations? X ⁱⁿ ~~then~~ the mind originates ⁱⁿ ~~not~~

most acute in darkness & silence. #

To the sense of touch we are indebted
for all our ideas of the primary qualities
of bodies. ~~From it~~ ^{the sense of touch} being so early associ-
ated with the sense of seeing, we are
apt to ascribe to the use of our eyes
certain ~~parts of knowledge~~ ^{parts of knowledge} which we acquire only
by the sense of touch - such as our
ideas of extension - figure - motion - ~~hardness~~ ^{hardness} &
softness. ~~depending on~~ ^{touch} The eyes ~~cannot~~ ^{cannot}
nothing ~~but~~ ^{of the properties of} these objects without the
sense of ~~touch~~ ^{touch} - and were it possible for
the sense of touch to be abolished im-
mediately after birth, we should never
be able to distinguish ~~as~~ ^{hardness} hardness from
softness - nor ~~roughness~~ ^{roughness} matters which
were rough from ~~smooth~~ ^{smooth} as were smooth.

its faculties are first excited, by the impressions
on the sense of touch. They begin ~~in~~ in
the womb, from the meconium, and
from external pressure. Abortions are often
produced by them. It is in consequence
of its being the most early sense in its
operations ^(beginning on the 4th month) that it is the most perfect of
any of them. The other senses do not
open till the 9th month ^{or till delivery} & sometimes not
till after it. The sense of touch is the
source of instinct. It begins in Utero.
The ^{susceptibility} ~~perfection~~ of this sense is evinced by
seeing & hearing the conduct of the apostle Thomas, who
did not believe in the ~~resurrection~~ ^{identity of} of his
body after his resurrection ^{seen}
until he ~~both~~ ^{was} conversed
with him until he ~~was~~ ^{he} satisfied ~~of~~
^{highest sense of touch} ~~reality~~ by thrusting his hand into
his side.
90 to 552.

Even the ~~blushing~~ rose, would not be
 distinguished ^{from} ~~the~~ a flame of fire, ~~the~~
 without the sense of touch. ~~But~~ This
 observation occurred with great force to
 Mr Molincaux the friend of Mr Locke,
 and ~~it was proposed by him to the~~
 following question was proposed to by
 him in consequence of it, to that great
 metaphysician. Suppose said ~~to~~ Mr
 Molincaux that a boy born blind should
 be taught by means of his fingers to
 distinguish accurately between a cube
 & a ~~ball~~ ^{Ball} made of the same kind of
 metal - and of the same weight, - and
 suppose this ^{boy} afterwards suddenly
 receive his sight - and the cubes and
~~round~~ ^{round} pieces of metals ^{should} be placed before

his eyes, do you suppose he would be able to tell which was the Cuee, and which was the ball." m^r Locke acknowledged himself unable to answer this question. You will certainly therefore excuse my attempting it.

The starting of the horse is owing probably to nothing but his ignorance of the properties of bodies from the want of the sense of touch. The timidity, or folly of many other animals may be traced to the same cause. In short the superiority of man ~~is intelligence~~ ~~and his power~~ over the brute creation, is derived in many particulars from his possessing ^{so} exclusively the sense of touch. To this he owes his knowledge of not only of most of the mechanical ^{elegant} arts, but ~~it is his~~ his ability to direct the pen and the type in the more important ^{employment} ~~employment~~ of writing & printing. Helvetius considers it as a more distinguishing characteristic of man than reason or speech.

Go back
five pages

~~Y~~ ~~except the sense of touch~~
 I have said that all our knowledge is
 acquired thro' the medium of the senses.

- This being the case, it follows that the
 more acute, and extensive we render the
 senses in their capacity of receiving im-
 pressions the more we shall be able to
 increase our knowledge. For this pur-

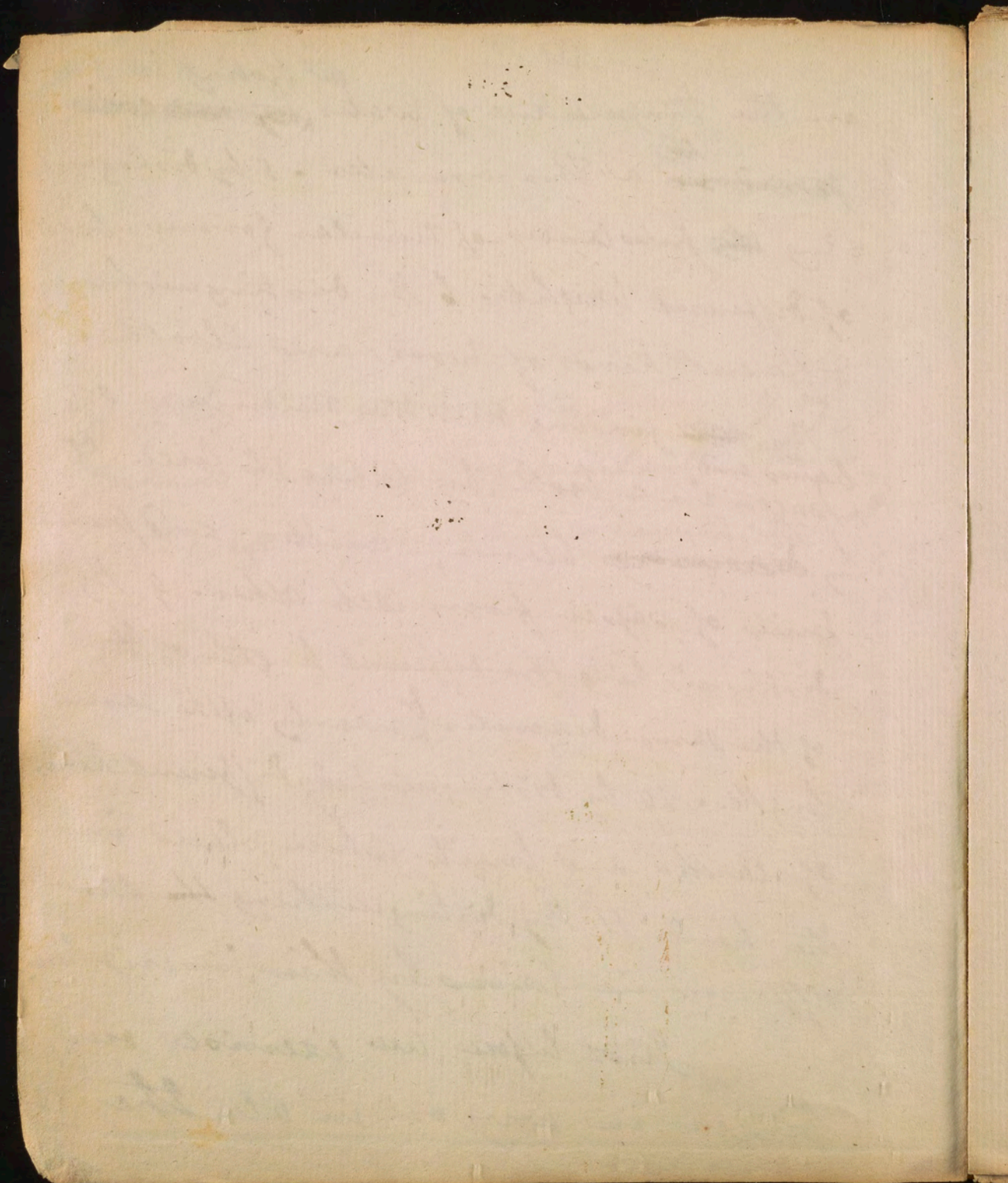
pose certain means have ^{been} employed
 which I shall ^{in order} mention ~~below~~ after

considering each of the senses. The sense
 of touch has been improved 1. By dis-
 covering persons by feeling their faces ^{or} hands
 or the hair of their heads. 2. by distinguishing
 and the leaves of trees.
 Coins, 3. by finding out what is written in
 the palm of the hand with a finger, or a
 pencil. 4. by distinguishing the difference

V 12 by distinguishing the frequency of
certain motions - particularly the
pulse in a given time.

in the temperature of water ^{and testing it by} ~~and testing it by~~
~~and testing it by~~ a Thermometer. 5 by distinguish-
 -ing ~~the~~ substances of similar forms, but
 of different weights. 6 By distinguishing
 different kinds of wood, and cloath.
 7 By ~~the~~ finding out the number of
 leaves and
 pages in a book, by feeling its line. 8
 by ^{distinguishing} ~~discriminating~~ blank, - written, and printed
 pieces of paper from each other. 9 By
 distinguishing the different lengths of sticks
 of the same diameter, & nearly of the same
 length. 10 by distinguishing different kinds
 of earths and fruits when placed in
 the hand. 11 By distinguishing the the
 difference in Coins by their inscriptions.

Just before we exercise our
 fingers in any or in all the



ways that have been mentioned,
the following means ~~here~~ will be
found useful in imparting sensibility
to the fingers.

1 ~~Placing~~ ^{Holding} the hands for a few
minutes in warm water.

2 Rubbing the fingers over a rough
substance of any kind. This acts by
exciting the extremities of the nerves.

~~3 By motion of~~

The sense of touch is further very
much increased by moving the fin-
gers back wards and forward upon the
body we wish to examine. also by
removing the fingers for a while, in
order to favour the accumulation of

202

✓ only to be acquired ~~only by a faithful~~ in the way that
have been mentioned, that cannot
fail of adding very much to the
safety and pleasure with which the
different branches of medicine may
be practised, but to the reputation
& interest of the profession. That it
is possible to add to the acuteness of
sensation ~~to the~~ in the fingers. I
infer ~~from~~ not only from its having
often attained, but from its being
so often induced by diseases. -

sensorial power & lastly by concentr-
-trating as much sensorial power
as possible in the fingers by closing
up the senses of sight by shutting
the eyes and of hearing by avoiding
conversation and noise of all kinds.

To many different Artists this
extension of the sense of touch is of great
consequence, but to none of them
more than to the physician, the Surgeon
and man-midwife. A ~~quick touch~~
knowledge not only of the pulse, but of
the temperature of the skin - of the nature
of tumors external & internal, of extra-
-neous matters which are removed beyond
the evidence of all the other senses, ~~and~~ is

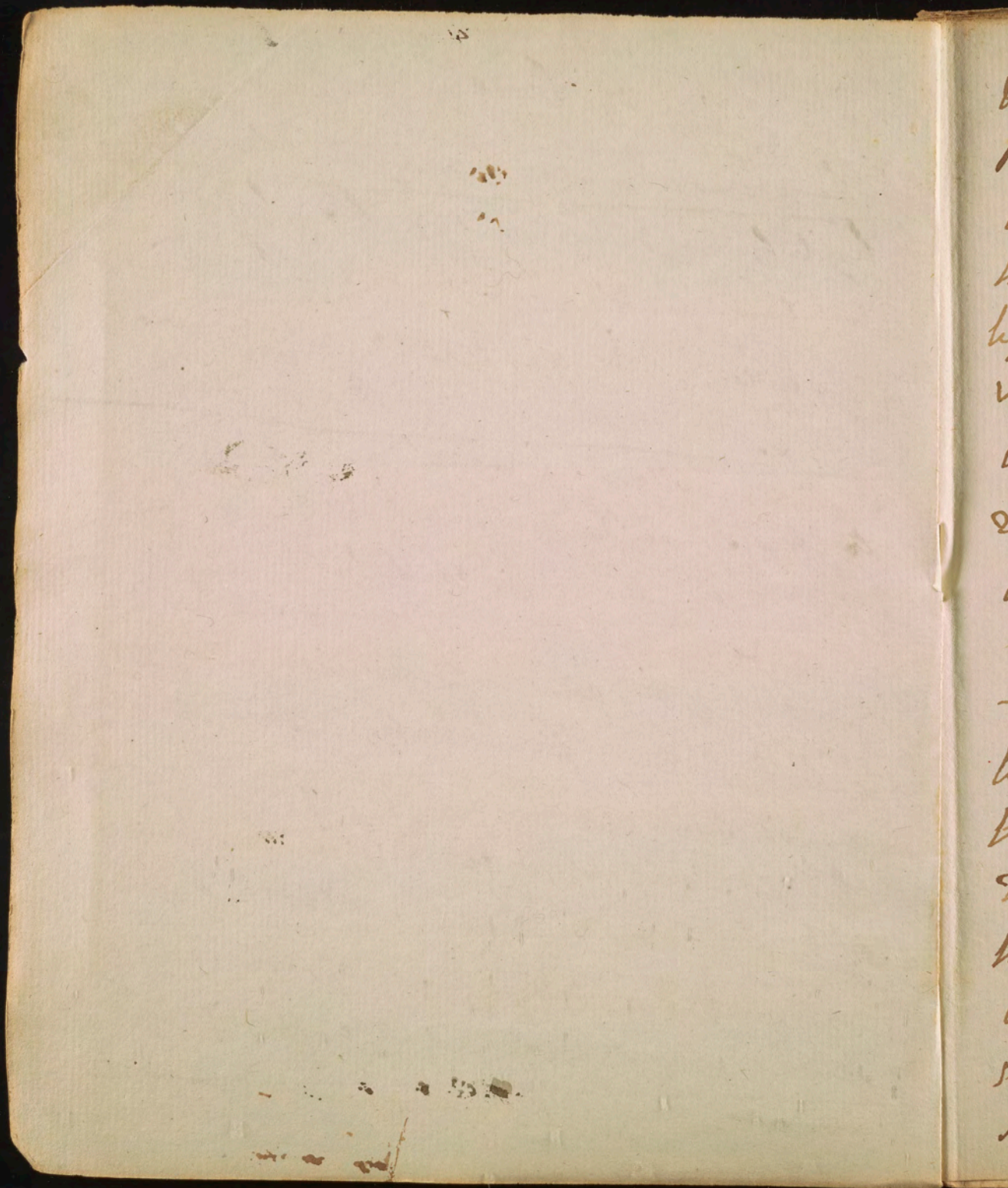
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of Taste

This Sense is seated only in the tongue,
by which I understand that body which
is placed in the mouth, and which is
capable of the greatest variety of notes
= ours.

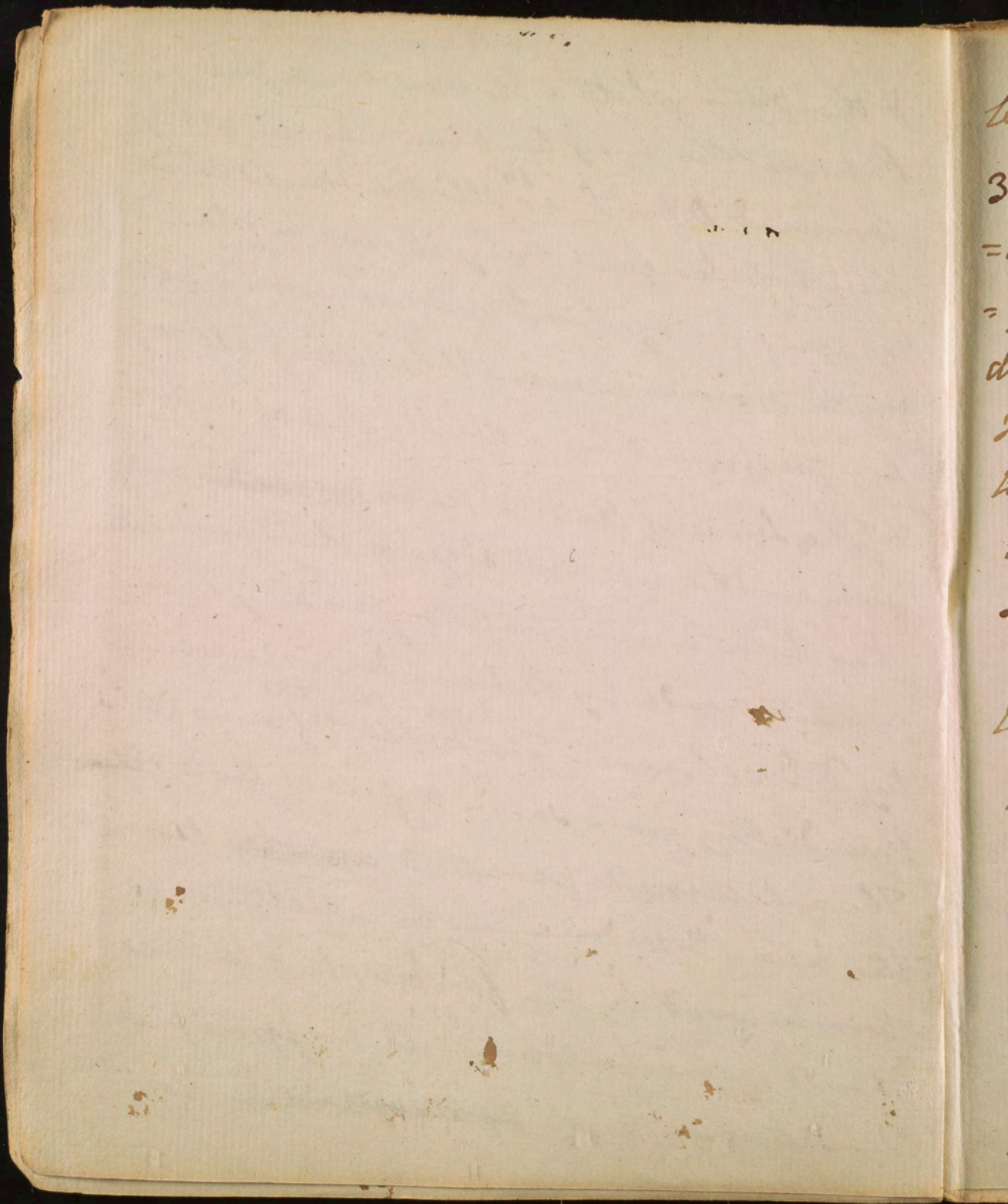
The following peculiarities relative
to this Sense, deserve our notice.

1 The tongue abounds with blood vessels,
nerves & muscles & Lymphatics. It has an
artery and vein and four muscles on
each side of it, from which some Anato-
mists have drawn an imaginary line
thru it. It would seem to be composed
of two parts, provided with the same
organs appended to each of them. I once
saw it equally divided by a straight line,
~~into~~ one side of which was ~~red~~, red,



& the other white. It was in a palsy.
 Perhaps this may be one reason why
 cancers & other sores ^{so} seldom spread thro'
 the whole tongue. may it not be placed
 by means of this structure upon a footing
 with vision, hearing & smelling all of
 are performed by a double set of organs?

2 The Sense of taste is seated ~~in the~~ only
 only in the tip and edges of the tongue. This
 has been demonstrated by many experi-
 -ments made by Bellini & since repeated
 by De Boerhaave. The ^{lips - the} palate & fauces it is
 true distinguish some objects of taste. ~~the~~
 Thus hellebore is perceived ~~upon~~ upon
 the lips - Belladonna by the palate, and
 wormwood by the fauces, but these
 should rather be considered as specific
 sensations, than ~~as objects of taste~~ as



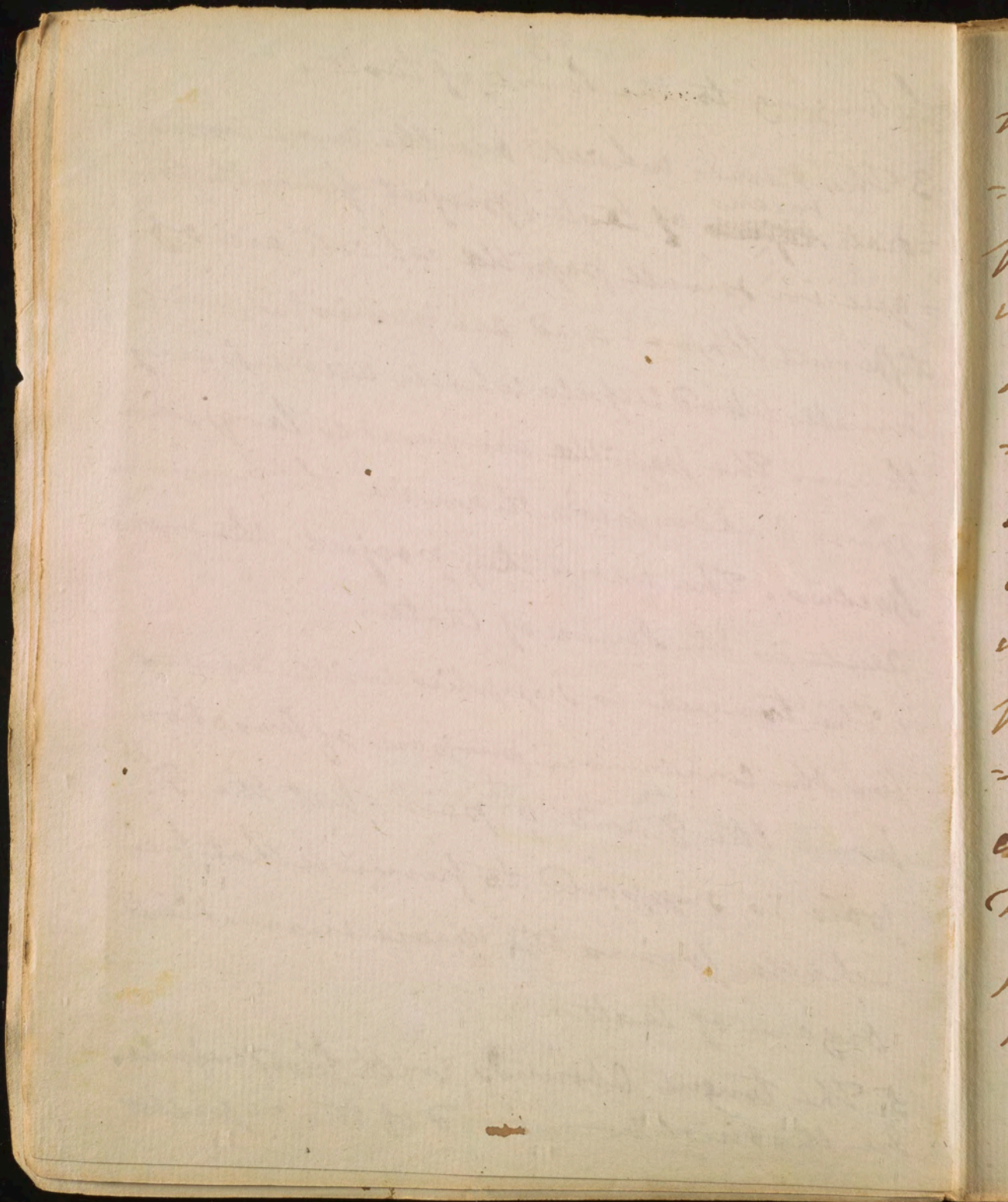
3

belonging to the sense of taste.

3 The Nerves which are the more immediate ^{means} of taste, project from the tongue in small papilla which are of different shapes, and are furnished with small blood vessels which accompany them. The papilla are much larger in some quadrupeds than in the human species. The more they project, the more acute is the sense of taste.

4 The tongue is supplied with nerves for the common purpose of tension from the 8th and 9th pair, but the 5th pair is supposed to furnish that branch which forms the more immediate organ of taste.

5 The tongue abounds with blood vessels. In the neighbourhood of the papilla



they furnish a liquor which is poured forth upon the tongue in order to favour the action of taste. This liquor is increased, and decreased in pressure. It is sometimes thickened in its consistency in which case the tongue is said to be foul or pressed.

6 The sense of touch is more exquisite in the tip of the tongue than in the fingers - hence we distinguish the roundness of an egg by the warmth of one end of it when applied to the tongue. The fingers ~~cannot~~ ^{are} unable to perceive this warmth. It is because the sense of touch is more acute in the tongue than in the fingers that children apply ~~the~~ the bodies that

✓ following circumstances. 1st By
the =

11 2nd By the confinement of the object
of taste exclusively to the tip of the tongue.
In this way the purchasers of wine test its
quality. If it happens ^{to be swallowed or} touch the palate,
they eat or drink something to remove the
impression of the wine upon the ~~the~~ palate.

are put into their hands so generally to
their mouths in order to ascertain their
nature and qualities.

06 Sense of taste is influenced by the V
~~of the tongue differs in its sensibility.~~

different stages of life. It is most ex-
quisite in infancy. It is for this reason
that Sugar which produces but a feeble
stimulus, is so grateful to young child-
ren. In more advanced life & particular-
ly in old age, the tongue becomes less
sensible to the stimulus of Sweet sub-
stances, and requires saline, or aro-
matic substances to produce in it the
excitement of pleasure. ~~It is however~~

3^{ly} ~~By the~~ By the
~~we lose our relish for a lemon~~
weather. ~~and so~~ ~~we lose our relish~~ on a
cold, or cool day, and ^{for} Coffee on a hot

✓ of their power of exciting taste by
means of Cold. It is reported by a
certain noble traveller, that all
bodies lost their rapid qualities upon
the cold Summit of the pike of Teneriffe
Wine is said to have its most perfect relish
when the Thermometer is about 55° .—

day. Acids are most grateful in ~~the~~
 Summer, and ~~cordial~~ cordial wines in
 winter. Many rapid bodies are deprived
 of By certain substances previously ta-
 ken in the mouth. Bitter - Sweet &
 acid aliments and Drinks, impart
 a portion of their tastes to all the
 matters that are taken immediately
 after them.

5 by certain Odors which pass thro
 the nose, and blend themselves with the
 Objects of taste.

6 By certain Diseases & in the sense
 of ~~taste~~ ^{taste, also}, in the nose & the brain. The
 tongue when denuded of its skin, or
 when inflamed, or otherwise diseased,
 imparts the most enormous sensations
 to the brain. a Catarrh which

✓ Some Physiologists add
~~to~~, ~~or~~ certain insipid substances
to the number of the Objects of
tastes, but they act negatively
only, and therefore should no more
be included among the Objects of
taste than the negative sensation
which arises from the absence
of light, should be considered as
one of the impressions of light.

7
obstructs, or inflames the ^{the nose} ~~food~~ ^{pharyngeal} membrane impairs or destroys the sense of taste. A disease in the brain has the same effect. To return

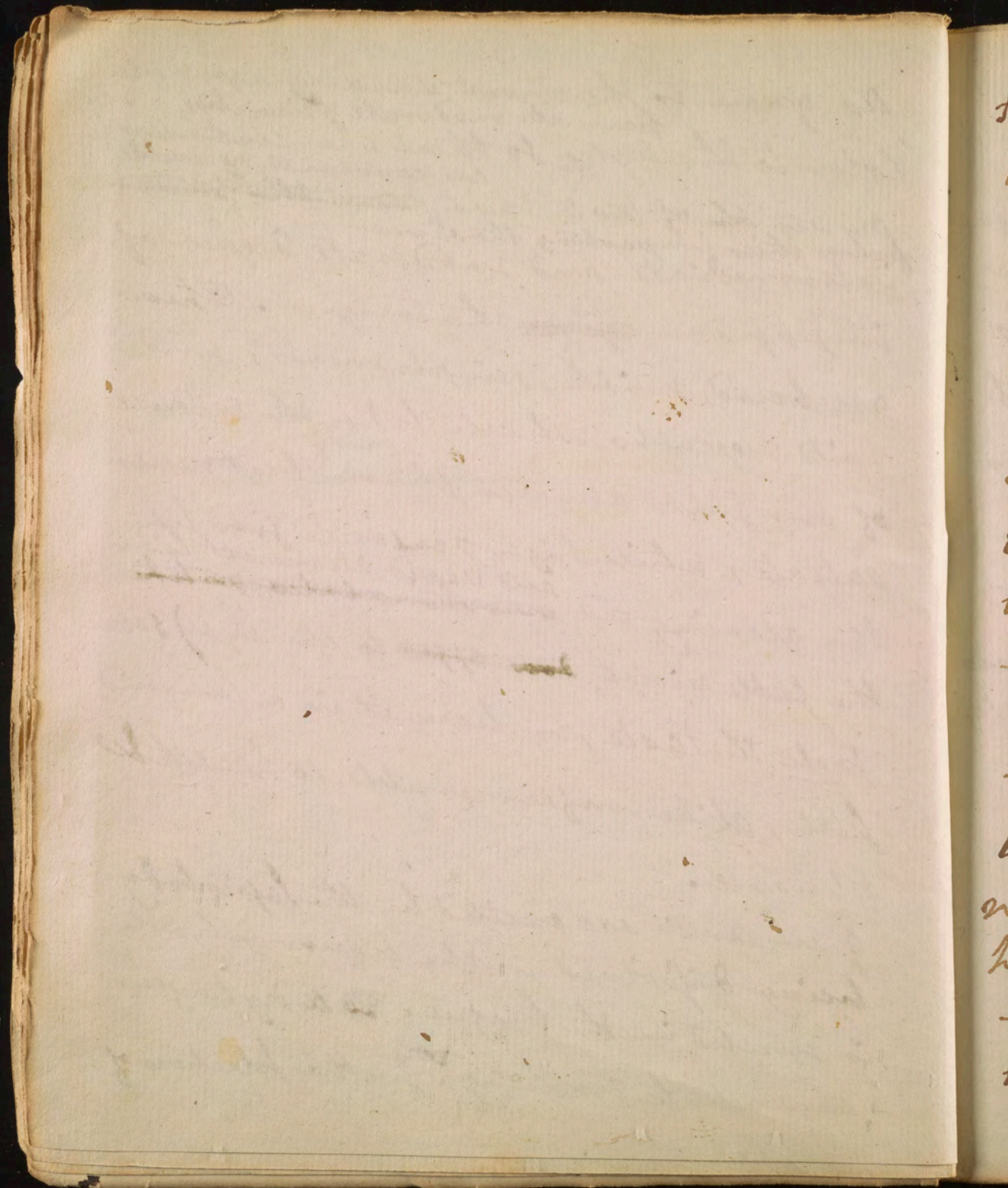
8. The Objects of taste are such Substances as are Sweet, Sour, rough, bitter, saline, viscus, Spiritous, Acid aromatic & putrid Substances. Dr. Keen supposes them to be sixteen in number. He probably

includes in them such impressions as are made upon the lips, and fauces. There is good reason to believe they are like the primary Colors but seven in number, and that the immense Variety of them are Compounds of those seven. There exists probably among them the same harmony & discord that takes place among colors.

✓ To ^{the} this ~~work~~

As green is the most durably agreeable
 from its moderate stimulus,
 color to the eye, so there are certain
 are constantly agreeable
 objects of taste that ~~have the same~~
 from their imparting the same
 intermediate and moderate degree of
 impression ~~upon~~ to the tongue. These
 are bread, milk, simple meats, and
 mild vegetables which like the verdure
 of our fields always please, but never
 satiate, while high seasoned food like
 the glaring red, ~~and rapid aliment like~~
 the feeble violet, ~~and offer to the eye~~ sover
all the taste, or leave it in a languid
 state, alike unfavourable to health &
 pleasure.

Of all tastes are excited by the rapid body
 being dissolved in the liquor which
 is secreted in the tongue. A dry tongue
 can relish nothing. In the solution of



9
sapid bodies in the mouth something like
agitation takes place, for the tongue after
receiving the sapid body throws it against
the teeth, and roof of the mouth by w.
means the solution is both expedited
and rendered more perfect. ~~To this~~ To
the remark of the ~~the~~ solution of a sapid
body in the ~~body~~ ^{tongue} before a taste can
be perceived from it, there is one excep-
-tion. The metals are insoluble in the
liquor of the tongue, and yet they cer-
-tainly impart a sense of taste to it.

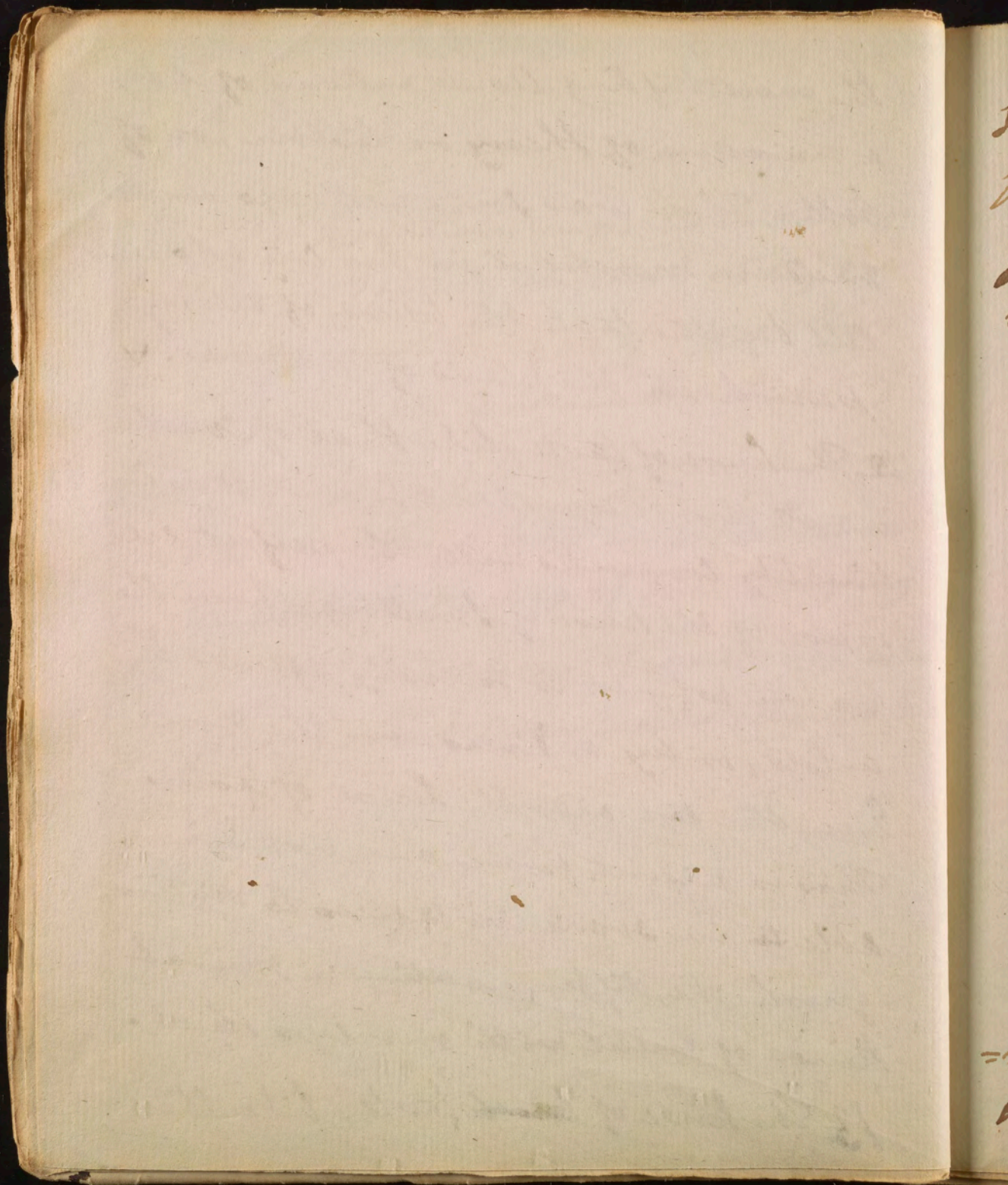
10 The perfection of the sense of taste is
much influenced by habit. Persons who
have long been accustomed to drink ma-
-dusa wine can tell at once whether it
has been taken from bottles, or drawn
from a cask. They can even distinguish.

11. The sensations imparted to the tongue has some Variety in them. They are generally constant, as if - ~~for~~ they arose from the continued action of one impression; But some Substances create something like an Undulation in the ~~tongue~~ nerves of the tongue, that is the Sensation of taste increases or lessens, or in other words comes & goes. -

the most trifling adulterations of it by a mixture of Sherry or Lisbon, or of both. There was some years ago an old Madeira Merchant in this City who could tell by the taste, the Wine of every parish in the Island of Madeira. ✓

12 The Sense of taste, like that of touch is not an independent Sense. It is intimately connected with the perfect exercise of the Sense of Smelling, - hence the reason why it is so easily affected by a Cold, or by a Disease in the Nose. Even the eye aids the Sense of taste. This is evident from our not being able to in some instances to distinguish the difference between several kinds of meat with our eyes shut.

13 The Sense of ~~taste~~ taste, like the



Sensation peculiar to the glans penis
formerly mentioned, may be transformed.

Jepicini relates the case of a girl born
without a tongue who had a high sense
of taste diffused throughout her mouth,
and a Surgeon in Saumur mentions
a similar case in a boy who lost his
tongue in the small pox. This sense in
some animals is supposed to reside in
the stomach. It is absent in others. In
the Antelope and in several other ani=
=mals, the tongue is supposed only to
assist in conveying food into the sto=
=mach. —

14 The tongue has an intimate conn=
=nection with every part of the System,
and impressions made upon it have

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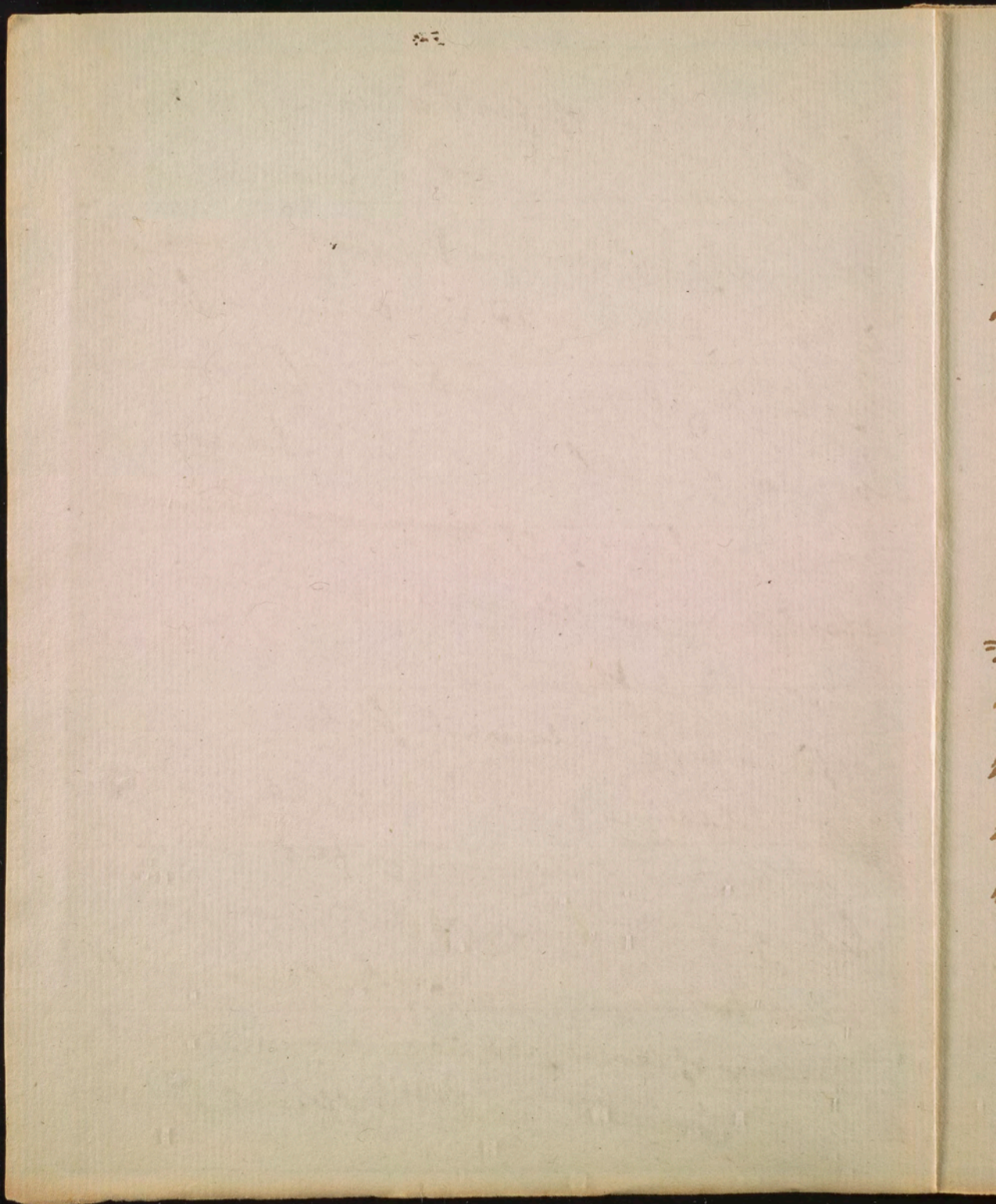
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an extensive influence in medicine. a
 few drops of lavender upon a lump of
 loaf sugar when dissolved upon the
 tongue ~~has cured the body from~~
 fainting, and infused Vigor into every
 part of the body. From this sympathy
 of the nerves of the tongue, with the whole
 body, it is obvious cordial medicines
 intended to produce a general effect,
 should always be given in such a
 form as to diffuse themselves over
 the mouth in order that the tongue
 may feel their impression as long
 as possible.

15 The Sense of ^{taste} ~~tense~~ serves to direct us
 in the Choice and preparation of whol-
 -some Aliments, for while this sense
 retains its healthy & simple state,

Such articles of food as are agreeable to the taste are with a few exceptions, generally wholesome & nutritious. It is much perverted in civilized society by intemperance, ardent spirits and tobacco, for which reason savages, & even the Beasts ~~of the field & the forest~~ derive more pleasure from its gratification than man in his most refined and cultivated state. —

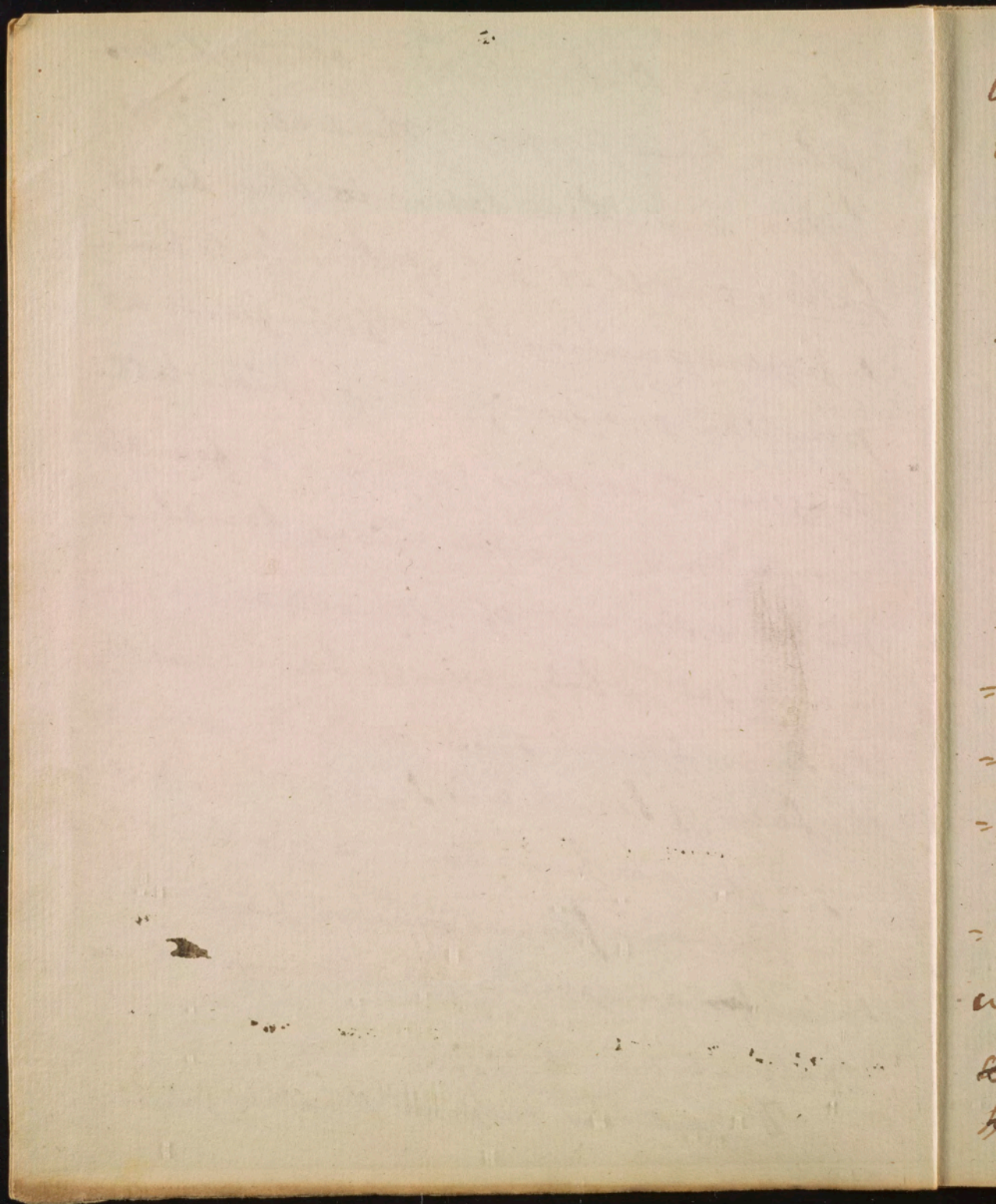
Having enumerated the principal and the most interesting facts which belong to the Sense of taste, we proceed next to inquire into the Cause of the variety of tastes, which are imparted to the tongue by the different Objects



14

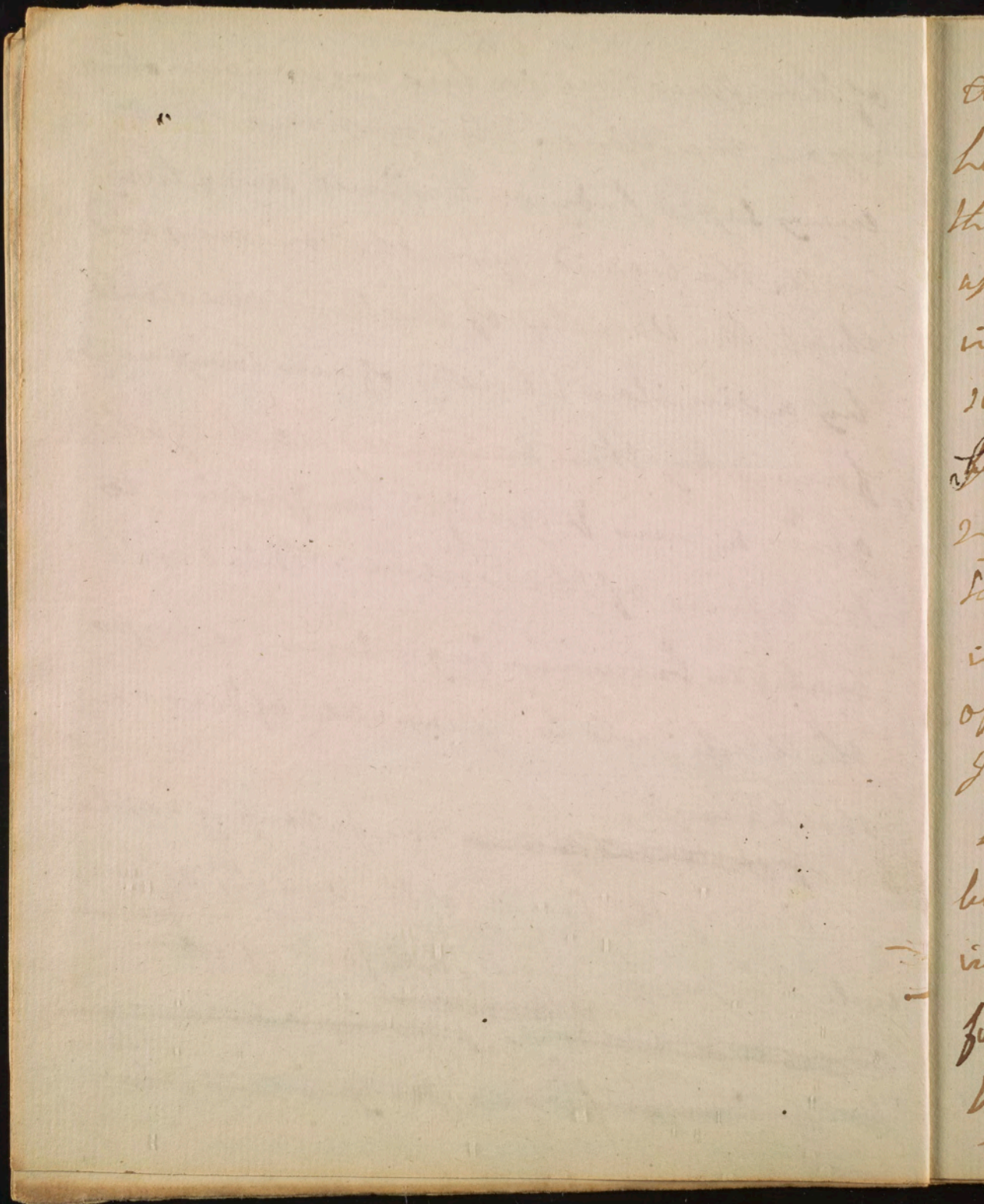
of taste. Baker & some other philosophers have supposed that all sapid bodies owe their savor to their being salts, and that each of these salts having a figure peculiar to itself, imparts a peculiar and specific impression to the tongue; But this opinion is founded upon erroneous premises, for all sapid bodies are not of a saline nature, and many saline bodies which have exactly the same form, such particularly as the salts of Sord and Sugar, impart a very different sensations to the tongue. The precious stones which have the same ~~for~~ angular forms impart no taste at all to it. —

Dr Reid has proposed another solution



of this question in his ingenious way
 upon the mind. He supposes that
 every solid body enters into mixture
 with the liquid upon the tongue, and
 that the Variety of tastes is occasioned
 by a similar Variety of new Compounds,
 formed by these mixtures, each of which
 gives a new & specific impression to
 the nerves of the tongue. This expla-
 -nation however ingenious, is hypo-
 -thetical, and is incapable of demon-
 -stration.

~~The following expla-~~
 -nation of the Cause of the Variety of tastes
 will I hope be more satisfactory. ~~for~~
~~of the same~~
~~is~~ ~~an~~ ~~appropriate~~ ~~to~~ ~~its~~
~~is~~ ~~improbable~~ ~~only~~ ~~as~~ ~~all~~ ~~the~~



As every thought as I hope to prove to you
 hereafter depends upon a different motion in
 the brain, so every different sensation of taste
 appears to depend upon a different motion
 in the nerves of the tongue induced by the ~~food~~
 rapid body which acts upon it. Thus
 Sugar excites by a peculiar & specific
motion in the nerves of the tongue, the
 sensation of Sweet - Acids ~~and~~ and bitter
 in like manner excite the sensations
 of sour and bitter. That this is the case
 I infer, not only from the manner in w.
 hearing, pleasure and pain are produced,
 but ^{from} many striking facts which occur
 in diseases, for to diseases we are indebted
 for our knowledge of many important
 truths in Physiology. The facts I allude
 to are as follow. Dr Hartley tells us

✓ I once attended a lady in an intestinal
disease in whom several of her drinks
and particularly port wine imparted
the taste of Sugar.

that bitters, and Aids applied to a fungus
 on the brain, produced the sensations of
 bitter, and sour upon the tongue. This
 appears to have been occasioned by exactly
 the same motions being excited in the
~~the~~ nerves of the tongue from their
 sympathy with the fungus in the brain
 which when ~~was~~ directly stimulated
 by bitters and Aids produce those
~~the~~ sensations in the tongue. Again
 Dr Deveres informed me that he had a
 patient in the summer of 1807 in whom
 every thing she applied to her tongue
 produced the sensation of bitter. This
 appears to have been occasioned by
~~the~~ those substances exciting in
 the tongue those motions ^{ordinarily} which
 produce the sensations of bitter. ~~is~~ ✓

✓ of them is excited by those motions in the
tongue which uniformly exist or pro-
=duce it. We learn further from the
solution of the cause of the Variety of tastes
that has been given, the cause of the
longings of women for particular kinds
of Aliment during their pregnancy. These
longings are generally accompanied with
nausea, or what is called Breeding sickness,
which (from the habitual associations of
the Stomach & tongue in its pleasures)
excite those motions in the tongue ^{that} ~~which~~
were formerly associated with the taste
of certain Aliments, - and as these Aliments
thus tasted are generally of a pleasant nature,
they become Objects of Vehement Desire, or
in other words of what are called longings.
We shall see hereafter, that all the senses, &
even ^{the} brain are upon the same footing in
producing their specific effects. = over left hand

I have heard in like manner of the
 sensation of Oil being excited by every
 kind of solid body that was applied to
 the tongue. The nerves ^{of the tongue} in all these
 cases are in a diseased state, and refuse
 to act in their ordinary manner from
 the impressions that are made upon
 them. This solution of the Cause of
 the Variety of tastes accounts for the
 many false sensations to which this
 sense is exposed in different people
 & particularly in Lichens. It accounts
 for mercury imparting the taste of Copper
 to the tongue in the beginning of a
 salivation. It explains the reason
 likewise why in our Dreams we
 enjoy the taste of the most agreeable
 aliments. ~~that~~ The sensation ✓

= I am aware that ^{a different} ~~the~~ individual nerve
is appropriated by some Physiologists
to each individual sensation. Should
this be the case, it will not invalidate
the theory I have delivered. The ~~fact~~
~~in the sensation will depend in this~~
~~case upon the~~ ^{want of concord between the} ~~impression and the~~
~~sensation and the impression made~~
~~upon the tongue will depend in this~~
case upon a difference in the nerve
stimulated, instead of different motions
in the same nerve or set of nerves.

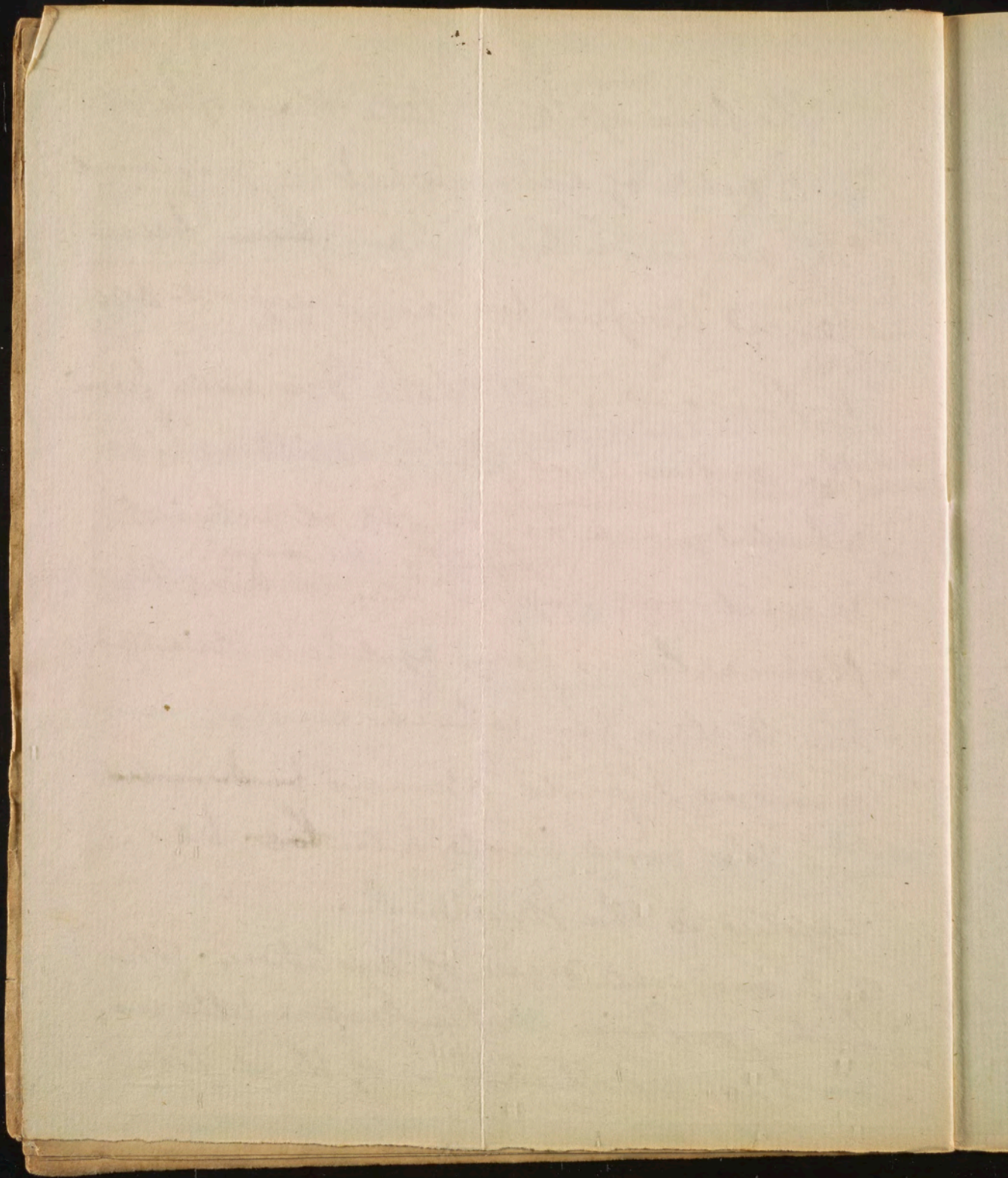
go to 21.
The sense.

The sense of taste like that of touch is capable of extension & improvement.

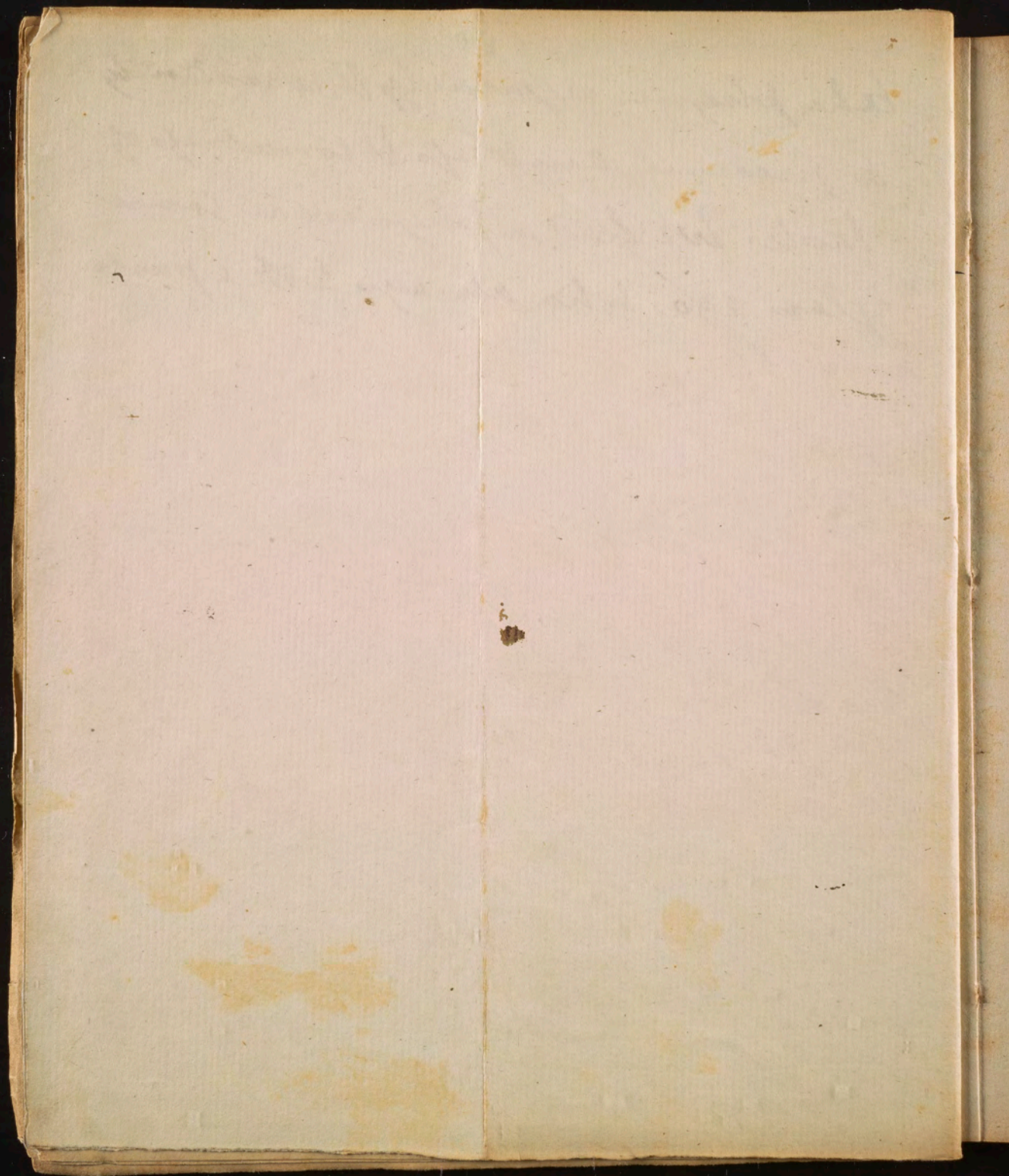
The means which have been found useful for this purpose are

1 Removing all those diseases from the tongue, and from parts which sympathize with it which ^{healthy actions.} prevent or impair it. A disordered stomach is very apt to vitiate the taste, for which reason our remedies should always be directed in the first instance to be applied to the stomach.

2 A moderate degree of depletion. The Cooks in Paris Mr Pinkerton tells us in his recollections of that city,



~~take physic regularly & constantly
to preserve anetness & consistence of
taste. We had a physician some
years ago, who always took a purge~~



in whom the ~~sense~~ of taste is absent
from the tongue, it may be seated in
^{some} the stomach, or some other part of
the body.

The sense of taste like that of touch
may be extended and improved, by the
following means.

- 1 Removing all those diseases from
the stomach & tongue and ~~the~~ ^{nose} which
I said formerly pervert or impair it.
- 2 By a moderate degree of depletion. ~~the~~ ^{the}
Cooks in Paris Mr Pinckerton tells us in
his recollections of that city take physic
regularly and constantly in order to
preserve acuteness & correctness of taste.
We had a physician in this city some
years ago who always took a purge

~~mean that swallow or Spout~~

✓ 4 By closing the eyes and obliging
persons to detect different rapid sub-
stances applied to the tongue.

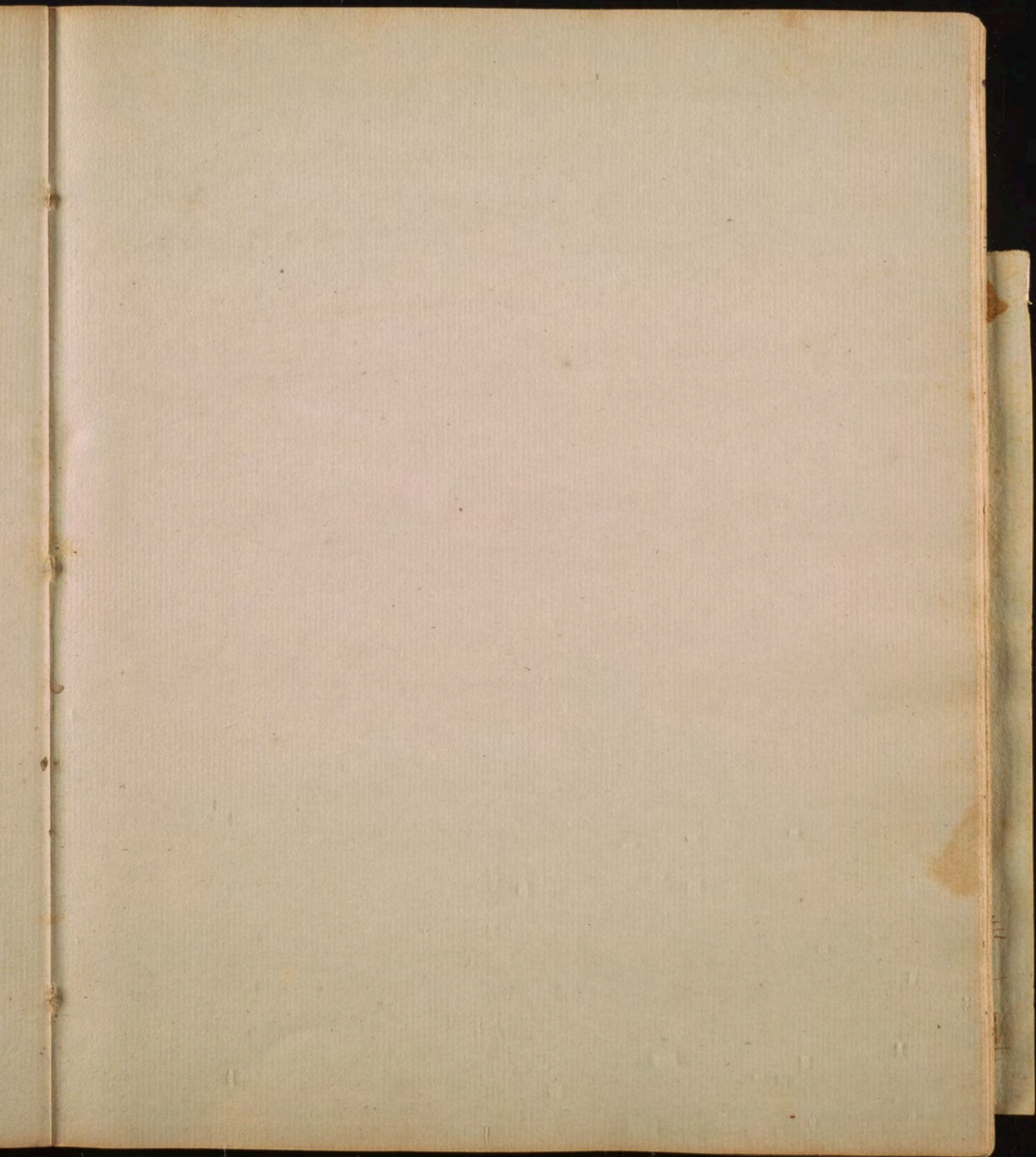
The day before he went to a feast probably for the purpose of increasing his relish for his food. Fasting has the same effect.

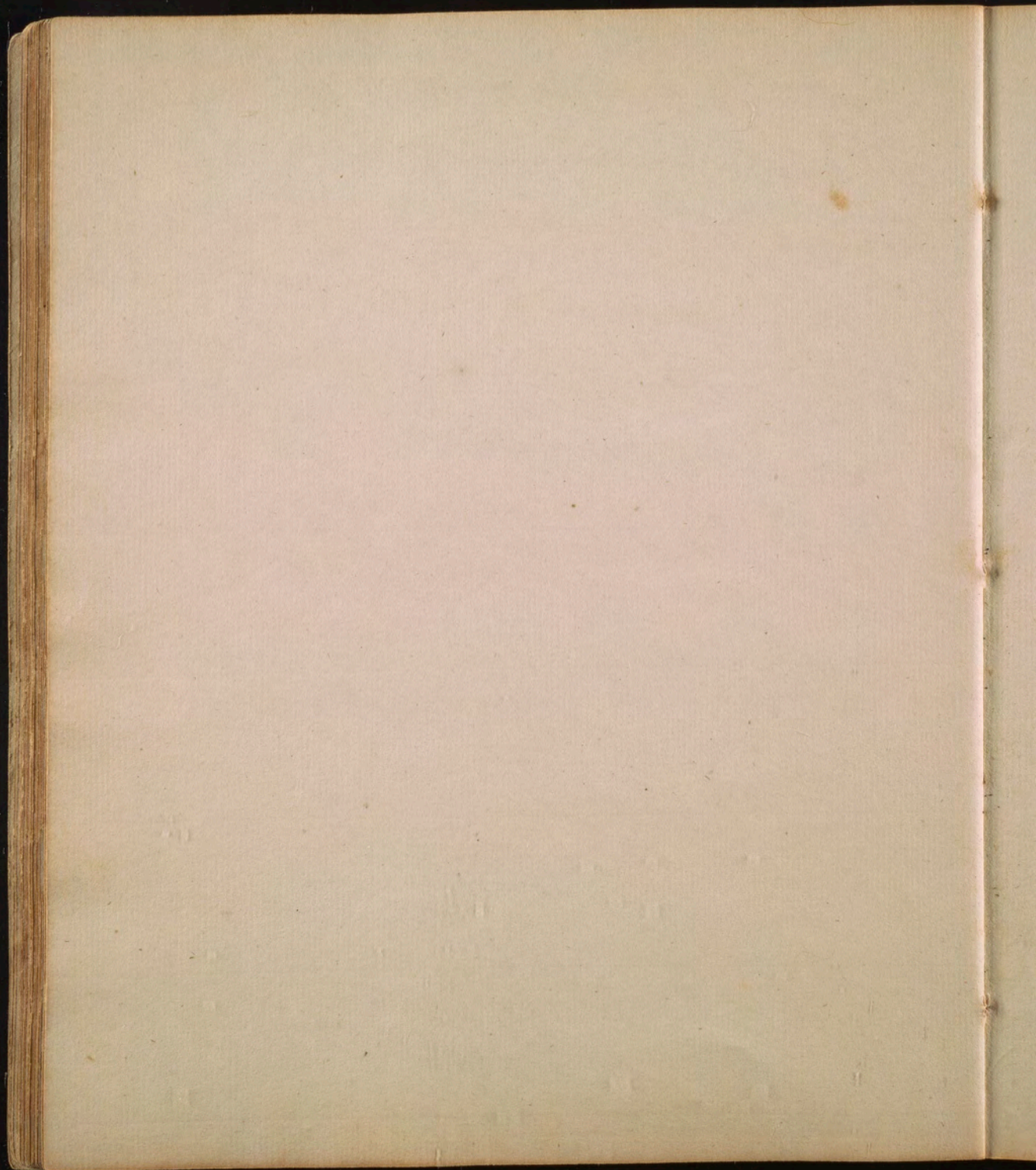
3 By ~~eating~~ ^{the} variety in aliments and drinks. The relish ^{for} of wine ^{when} ~~it~~ it begins to flag upon the taste, may be revived at any time by eating a little cheese. In this way ^{likewise} retailers of wine ~~can~~ retain ~~the~~ the correctness of their taste, so as to be able to purchase by trial large quantities of wine at a time. V

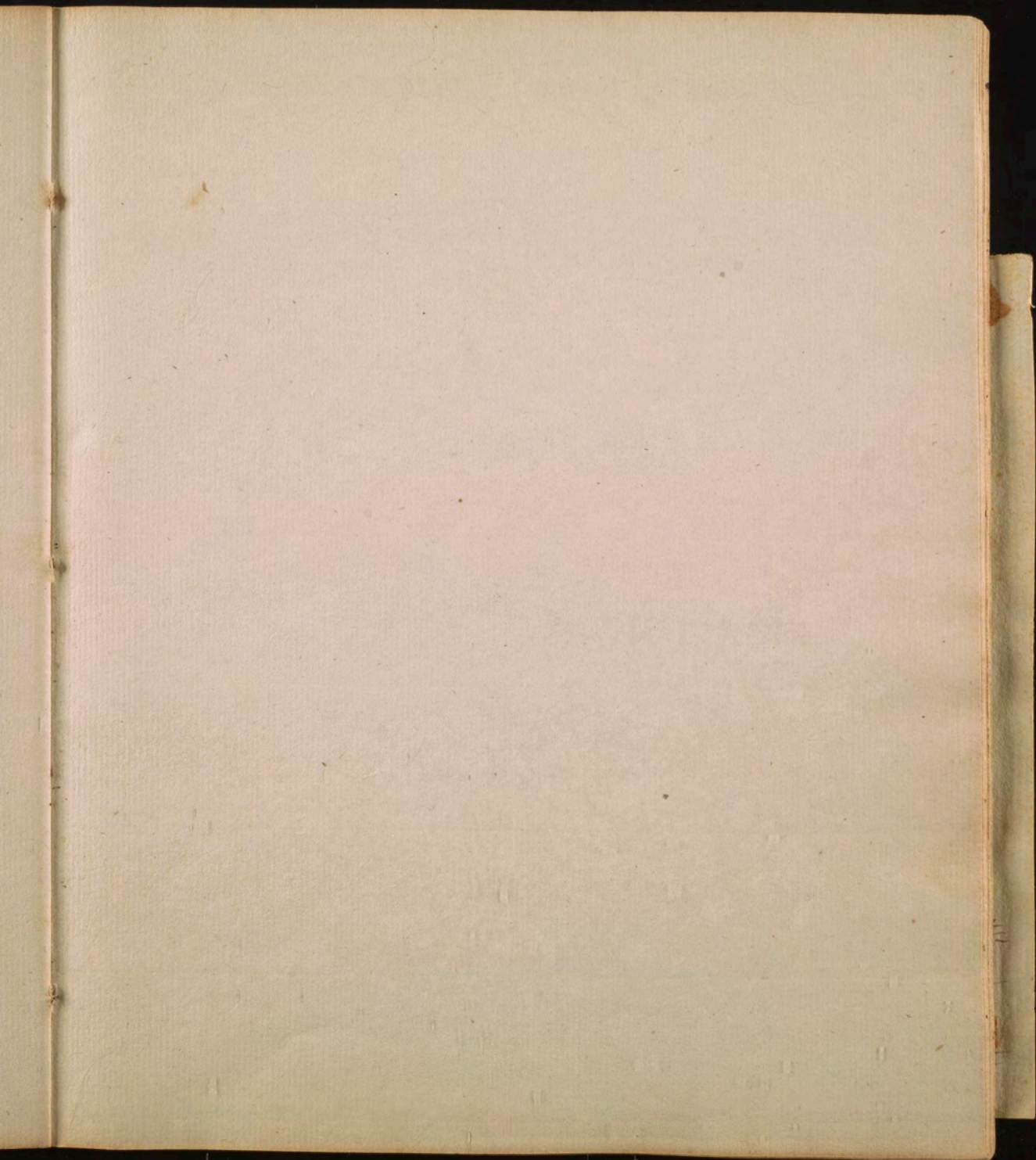
The improvement of the sense of taste is calculated not only to add to the pleasures of the table, but it may be rendered useful in various arts, &c

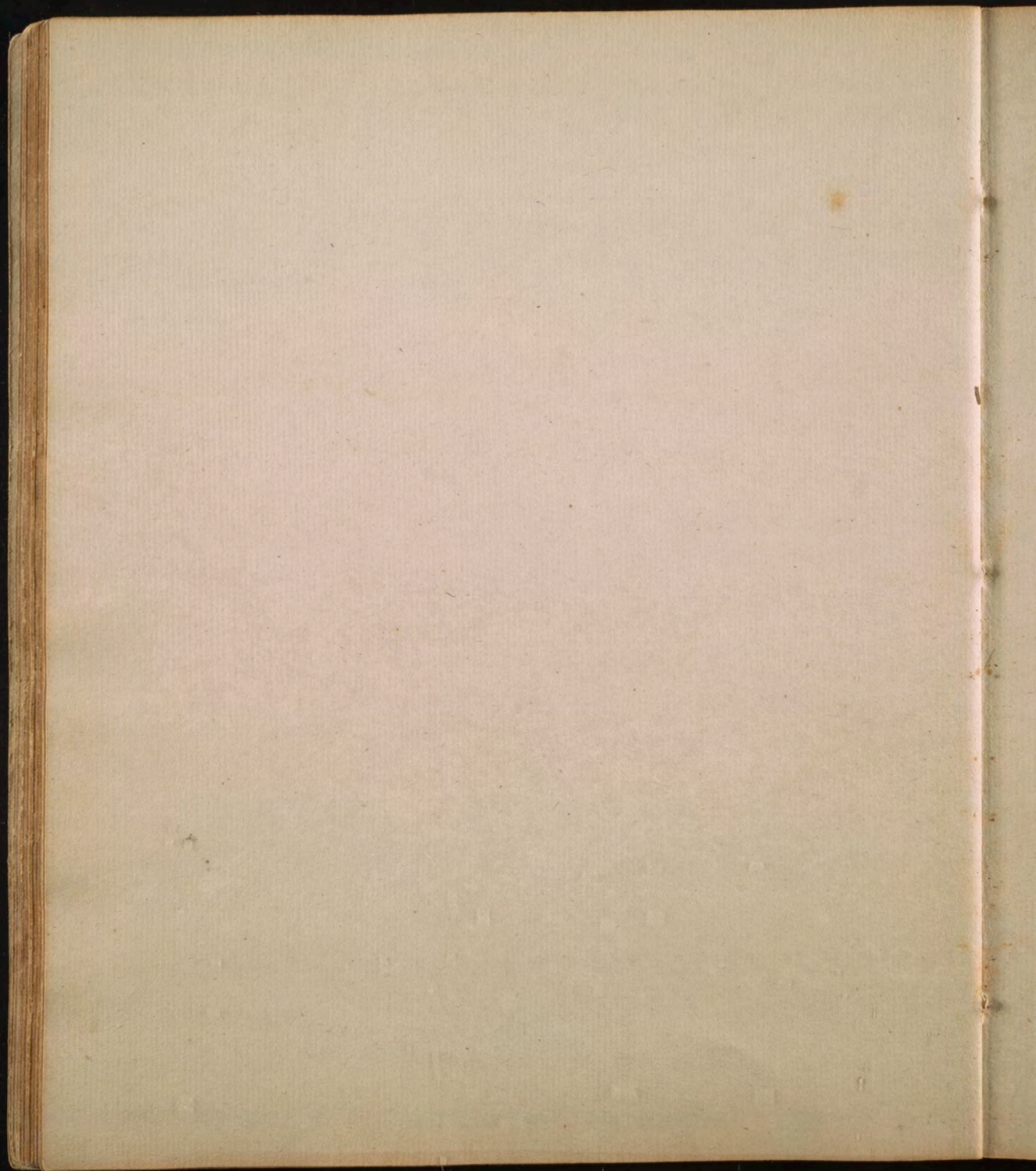
even in medicine. The ~~the~~ nature of
 diseases is sometimes found out by the
 taste of certain animal fluids, and the
 quality and found state of ^{many} medicines can
 only be discovered by means of this
 sense. The more acute it can be
 rendered by Art, the more benefit we
 shall derive from it when employed in
 either of the ways that has been
 mentioned.

There is a great deal of
business in the country
and of course there is a
great deal of money
and in the country
there is a great deal of
money. The money
is in the country
and in the country
there is a great deal of
money.

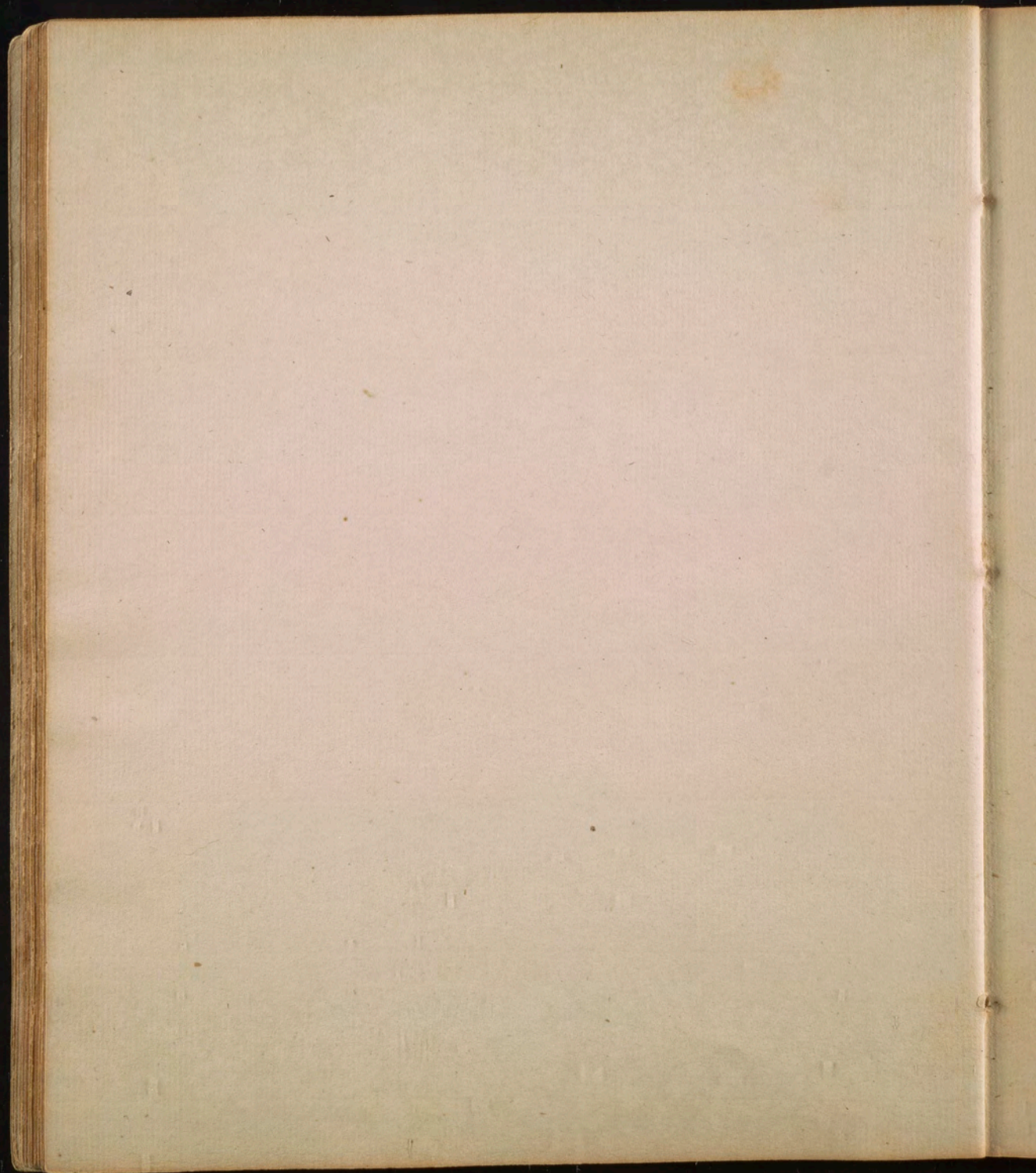




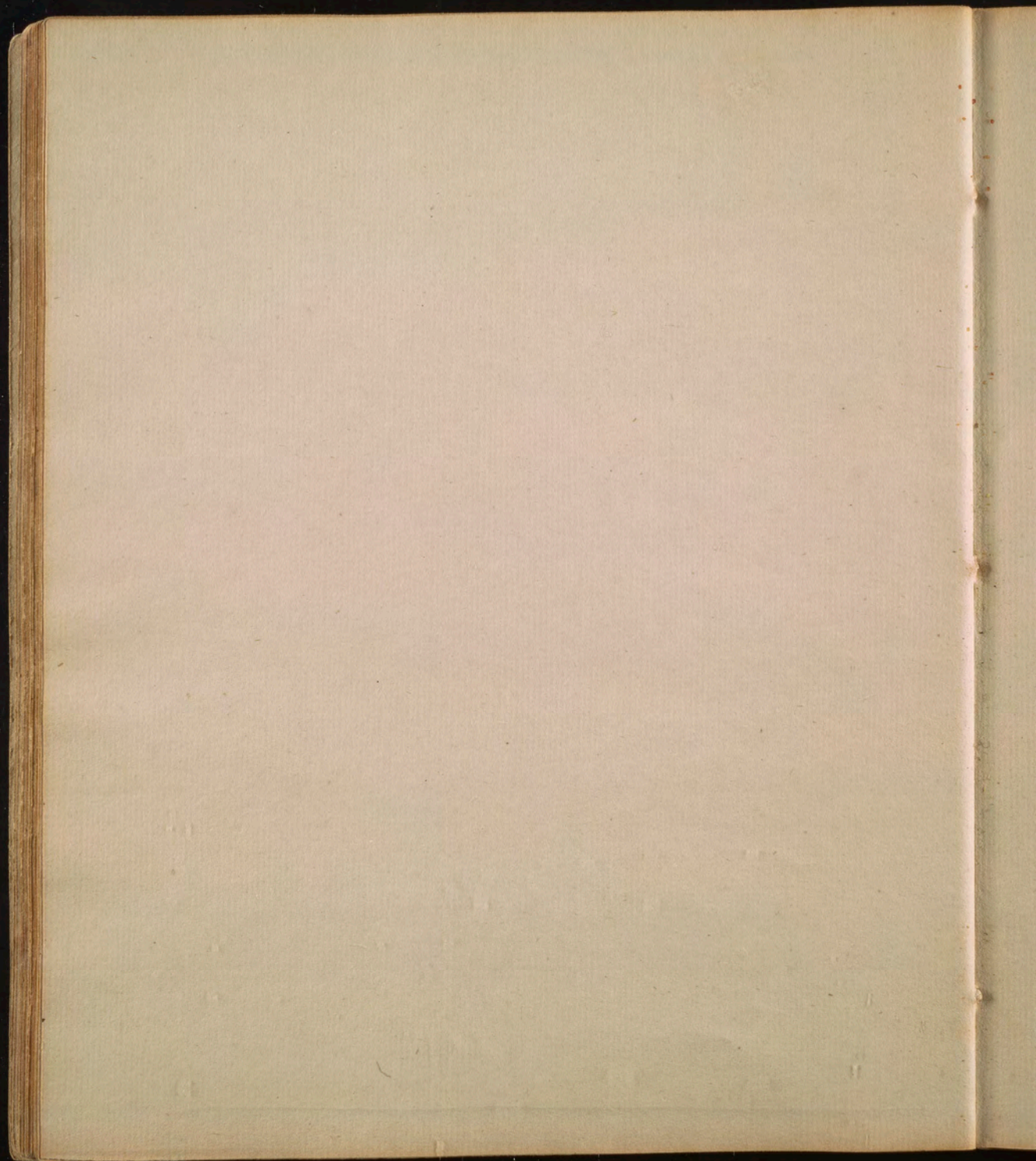


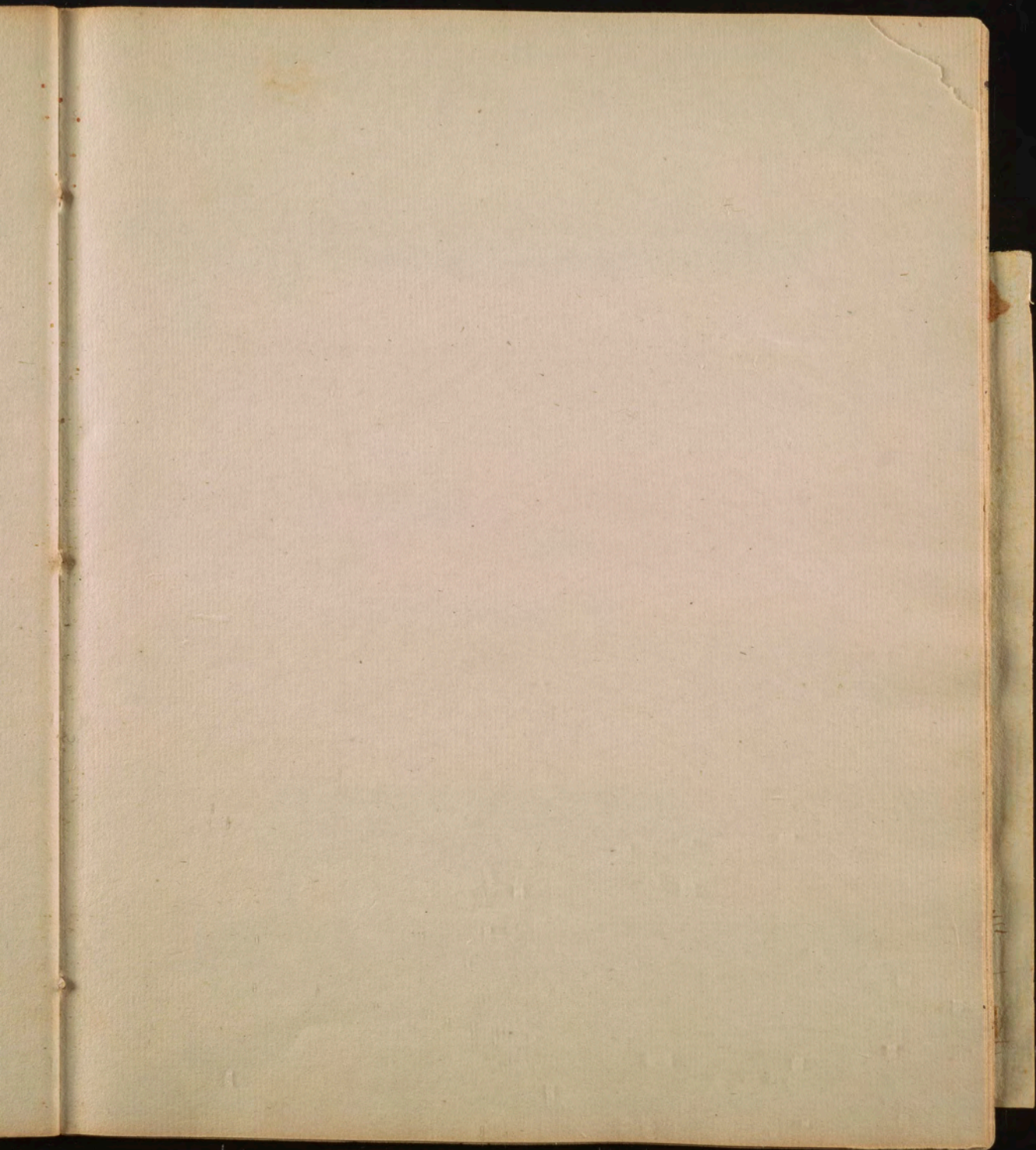


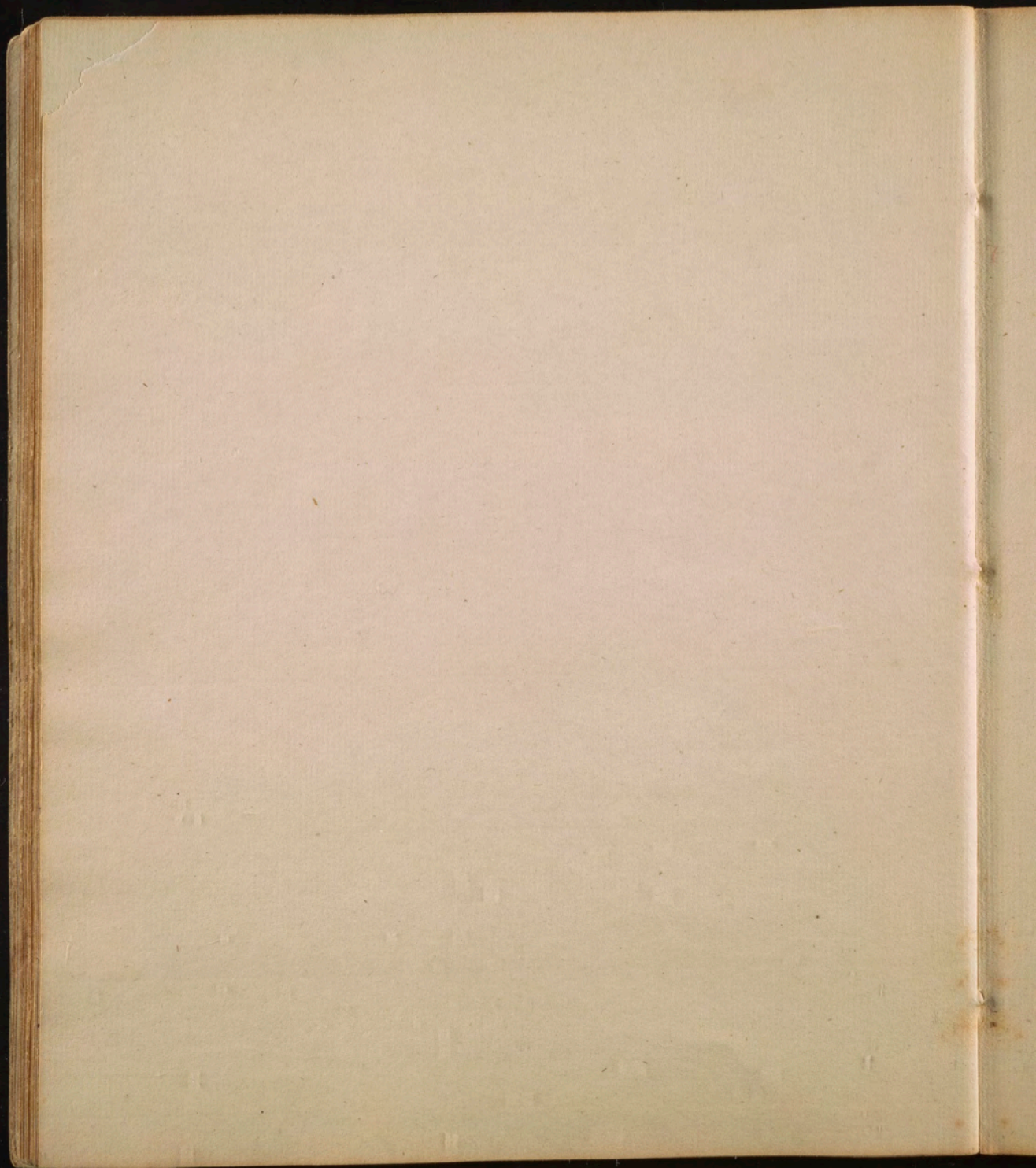


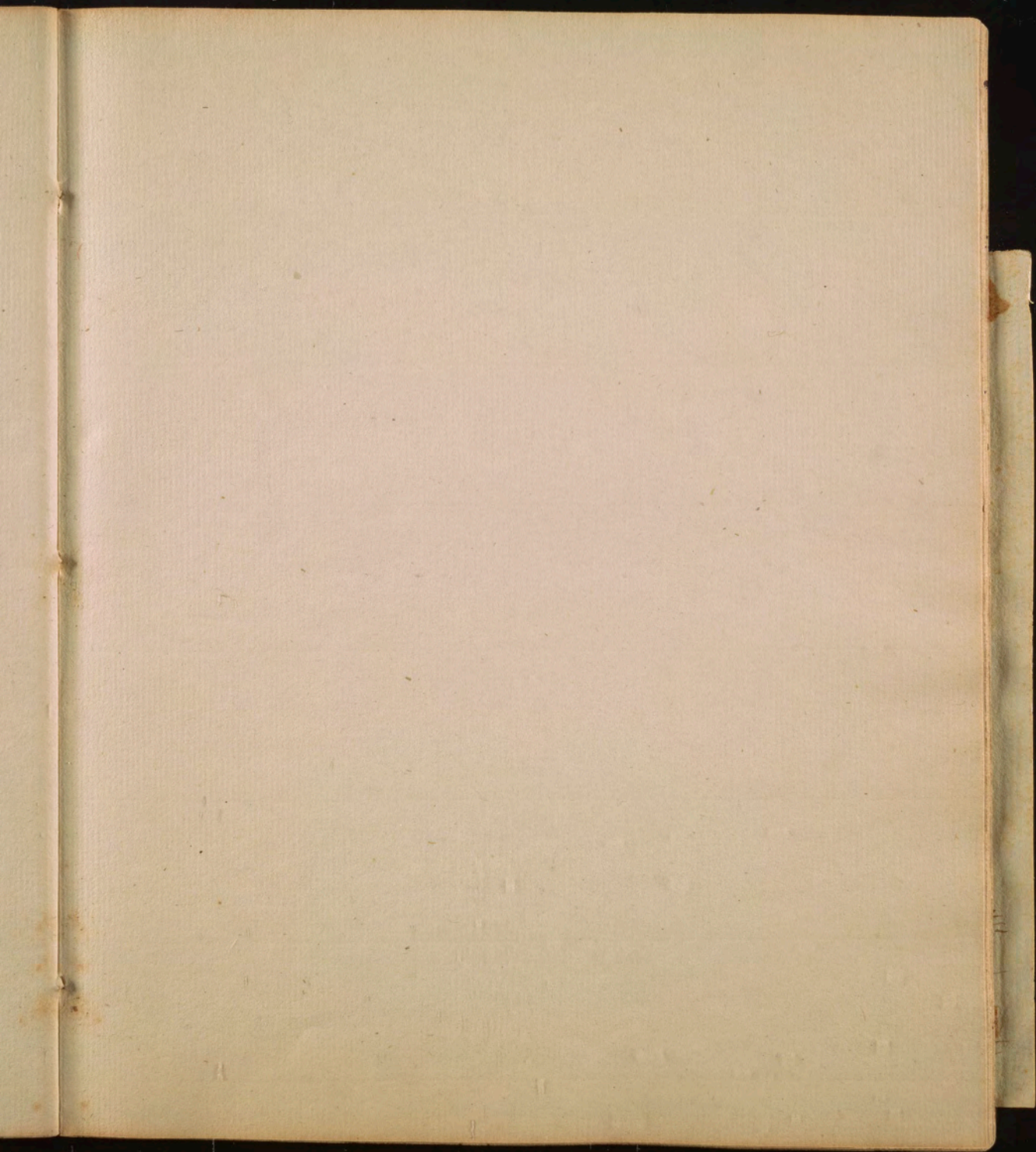


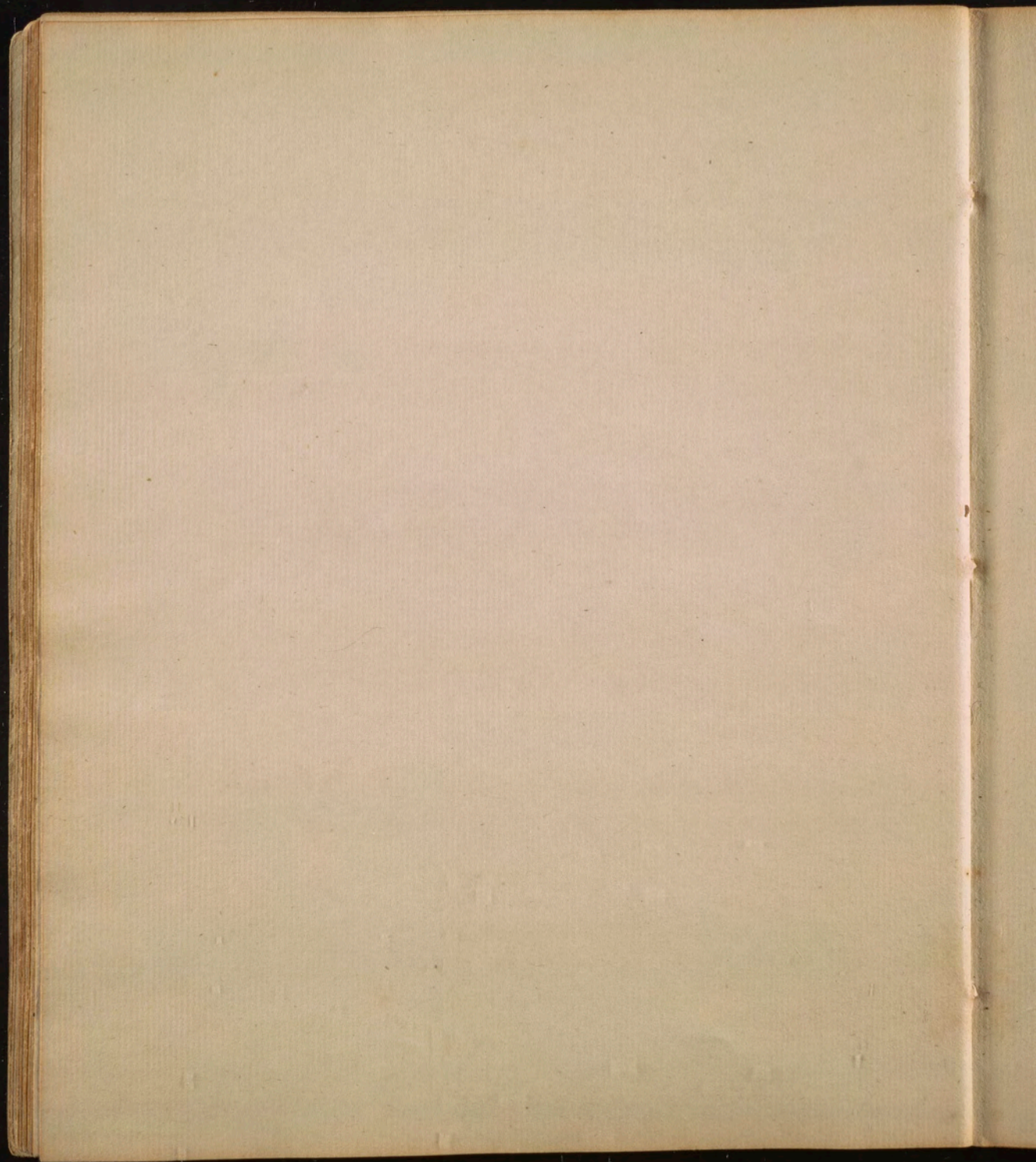


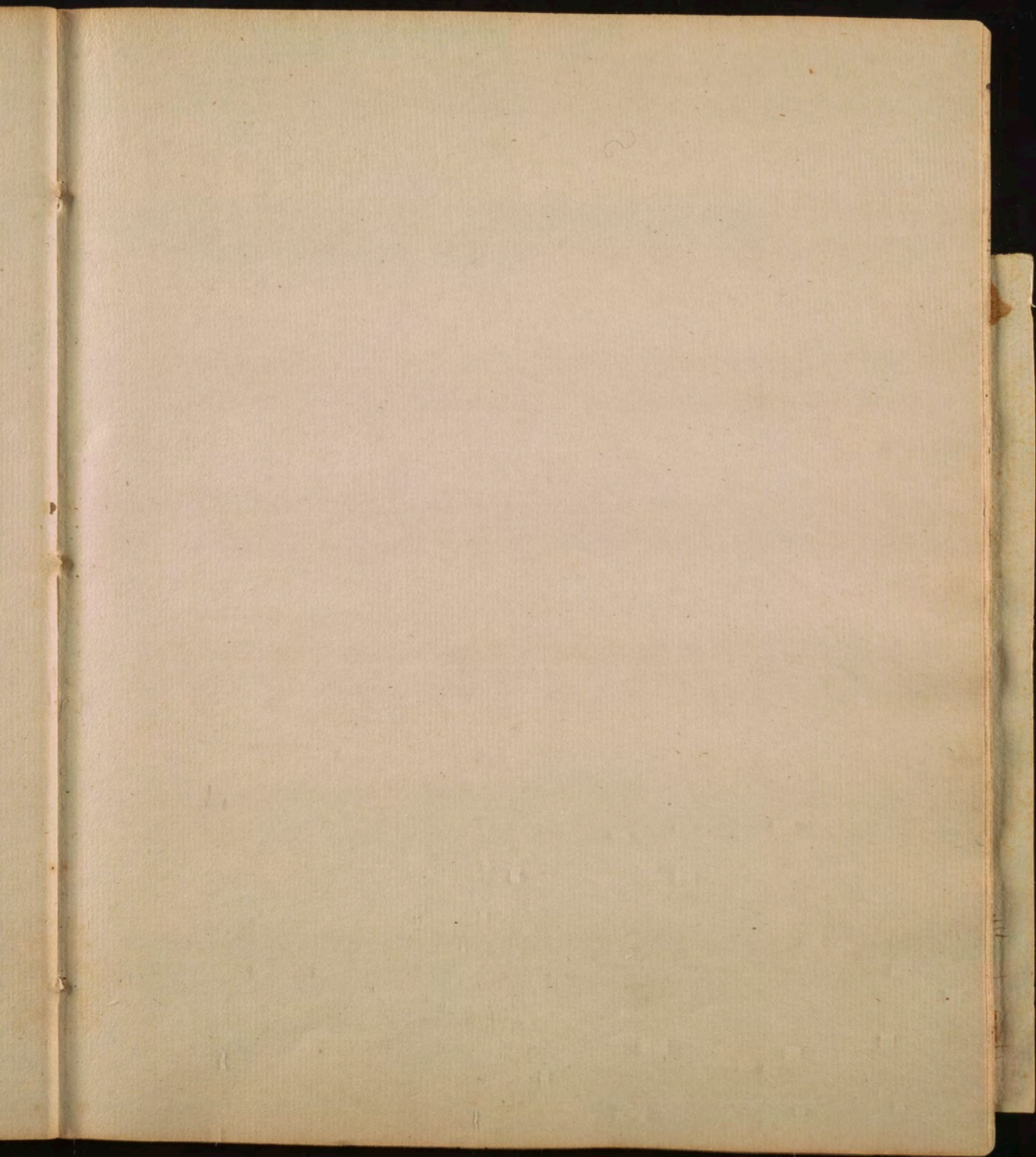


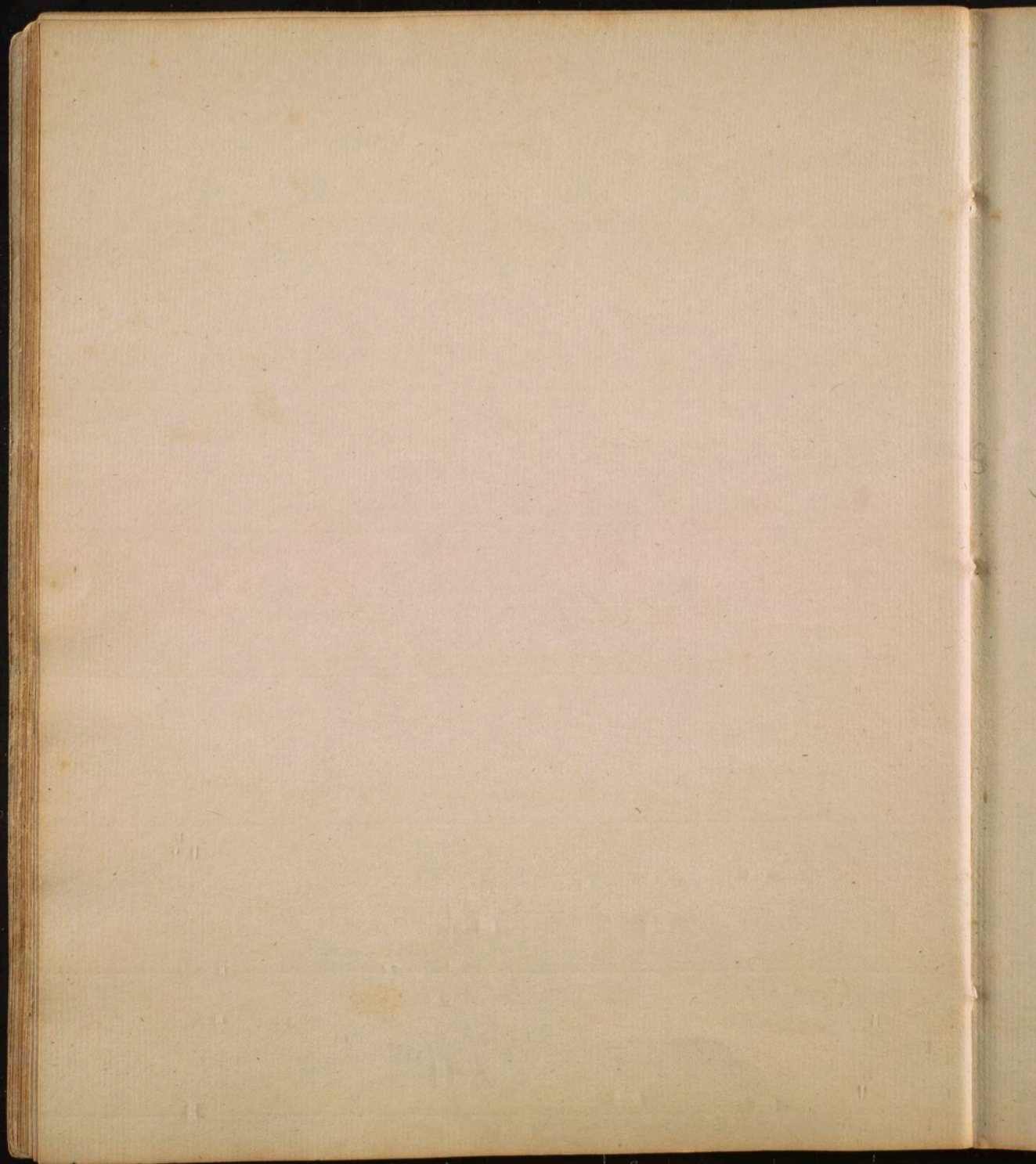


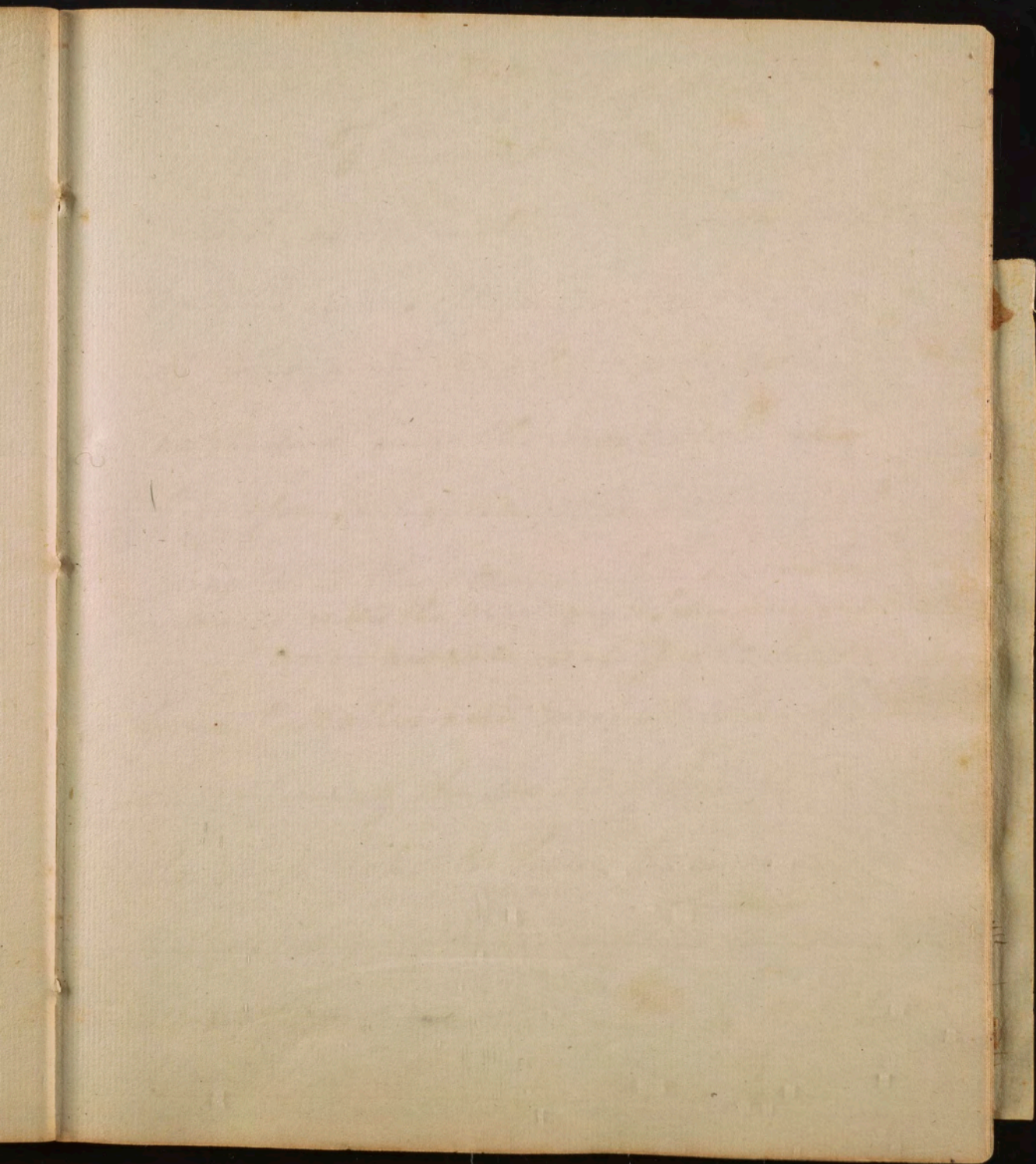












of Smelling

The sense of Smelling is performed by means of a soft pulpy membrane full of pores and small vessels which is extended over the nostrils & ~~also~~ over the Os spongiosa - the septum of the

nose and the ethmoid bone. This membrane is called the pituitary & Schneiderian membrane.

I am aware here Gent: that I differ from Dr Haller and several other Physiologists in confining the sense of smell only to the parts which have been mentioned.

~~But~~ ~~perhaps it might be confined to the Os~~
~~spongiosa~~ ~~It~~ Its extent to the septum & Ethmoid bone seems to have been

[Faint, illegible handwriting in cursive script, likely a letter or journal entry. The text is written in brown ink on aged, yellowed paper. Several dark ink spots and smudges are visible across the page.]

intended only to supply the defect ~~of~~ⁱⁿ
 diseases of the *Opac Spongiosa* - for out
 these bones the impressions which excite
 the sensation of smell, are chiefly
 made. - My reasons for excluding
 the *Sphenoid* & the *Ethmoid*
 the frontal and maxillary sinuses from
 having any share in producing the
 sensation of smell are as follow.

1 If these Sinuses were necessary to
 the sense of smelling, those animals
 which smell most acutely, would have
 them proportionably large - But this
 is not the case. The only difference
 is in the size of the *Opac Spongiosa*
 and ^{not} in the frontal sinuses. The larger

[Faint, illegible handwriting in cursive script, likely bleed-through from the reverse side of the page. The text is arranged in approximately 15 horizontal lines.]

Use of the frontal sinuses is intended to
~~extend the~~ defend the heads of animals,
 and to ~~extend~~ afford a more extensive
 surface for the origin & insertion of mus:
 = clo. —

2 In Animals of the same size which
 differ in their Anteriority of smelling,
 there is no difference in the size of the
 frontal sinuses, but a material differ-
 = ence in the size of the Opa Spongiosa.

3 All the Sinuses have a winding open-
 = ing which is turned away from
 the nostrils, and which ^{is directed} ~~is directed~~
~~into~~ into the throat.

4 The Air instead of entering these sinuses
 in smelling, appears rather to be discharged

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from them in the act of smelling.

5 Pungent substances do not give pain when applied to the membrane which lines the internal surface of these sinuses. —

I exclude the sinuses further from containing and passing forth a fluid ^{presence} ~~whose~~ whose use is said to be to ~~maintain~~ ^{as constant} moisture in the Mucous of the nose — and that for the following reasons. —

1 We observe the greatest quantity of mucus ~~the~~ discharged from the nose in children before the sinuses are formed

2 In no position of the head, &c.

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They ~~can~~ never discharge any ~~sort of~~ moisture ~~from~~ from the nose. —

3 Did these sinusses contain a fluid in them, it would unfit them for performing the only use we formerly ascribed to them which, was to increase those tremors or vibrations on which I formerly said the Voice depended. —

The Mucus which lines the inside of the nose, appears to be ~~secreted~~ poured out from ~~the~~ Arteries, and ~~being~~ deposited in crypts or cells or in cylindrical ~~ducts in~~ ducts in the nose. ~~It is~~ a due degree of tenuity in it is kept up by the constant effusion of tears from the the Lacrymal ^{gland} ~~gland~~. This moisture in the nose is indispensable

v The heat of the Nose in middle life
dissipates its superfluous ^{gradually,} moisture, but
~~is not~~ - it is discharged ^{in old people} in large
drops - hence poor ^{old} men who are not
provided with handkerchiefs generally
introduce themselves to you by rubbing
their hands across their nose. 

The sense of Smelling is more universal,
than that of Taste, from its being more necessary
~~for~~ in procuring food. It begins in early
life. ~~As~~ New born infants appear to be
led by this sense to desire their mother's milk,
for they are ~~often~~ imperfectly furnished
- time after birth. The nerves which form
the organ of Smell are larger than those
which form the organ of taste.

to the Act of smelling. — V

The ~~body~~ ^{internal part of the} nose abounds with blood
Vessels which ensure the sensibility of the
nerves of the nose. These Vessels are ^{not only} very
~~many~~ numerous, but slender, — hence
the facility with which they are ruptured
from accidents & diseases, more especially
in early life. — H

To the performance of smelling, the
^{inspiration} of Air is absolutely necessary.
~~For~~

No smell is perceived by an Animal in
whom the Aspera Arteria has been
cut, nor in expiration, or a suspension of inspira-
tion. The force with which the Air is
inspired by the nose tends very much
and expiration. —

to promote the effect of impressions
on the organs of smell. — The shorter the

~~bridge of the nose~~ the shorter the

✓ The sense of Smelling is further
rendered more acute by shutting the
mouth. & for the same reason - none
of the effluvia are wasted in the Mouth.

☛ Numerous as the Objects of this
sense are they have been divided by Linnaeus
into 7 classes They are 1. The Ambrosiae - as
the Rose & musk. 2 The fragrant as the Lilly,
& Jessamine. 3 Aromatic as the Spices. 4 Alliacious
as Garlic Onions, Asafetida. 5 Fetid - as Valerian
6 Vinous - as ^{the popping} Opium. & 7 & noxious as the
gourd - & piony.

The ~~sources~~ ^{founders} of Odors are much more
extensive than has been supposed. They arise
even from metals & stones. In order to

Acts of inspiration, - the better for
 this purpose, - hence when we wish
 to smell most acutely, we imitate
 the greyhound by a number of short
 & quick Acts of inspiration. - The
 whole of the effluvia of the odorous body
 is moreover concentrated by these
 means ~~in~~ ⁱⁿ the nose, and none of
 them ^{or wasted in} conveyed to the lungs. ~~—~~ ^{† V}

~~The variety in the perception of
 Odors like the Variety
 in the Objects of taste ^{was} supposed by Dr
 Reid to depend upon certain mixtures
 formed by the Union of the Odorous
 body with the mucus of the Nose. [†]
 † This sense ^{the more independant than} ~~like~~ that of taste is not
 altogether so - It is tributary in a small
 degree to the eyes. - ~~hence as fire~~ It is~~

produce odors, it is ^{3/4} necessary the matters that
create them should be a gaseous or volatile
state. They are converted into this state by
^{heat,} friction (as metals & stones) ferment?
solution and mixture. —

The matter which acts upon the nose is

often so subtilized, as to escape observa-
tion, and almost to excite conception.

A single drop of the oil of a damask rose
will often impart such a smell to a pint

of sweet oil, as to render the whole mass

fragrant for several years. A grain of

musk has been known to perfume

a large room for twenty years. The

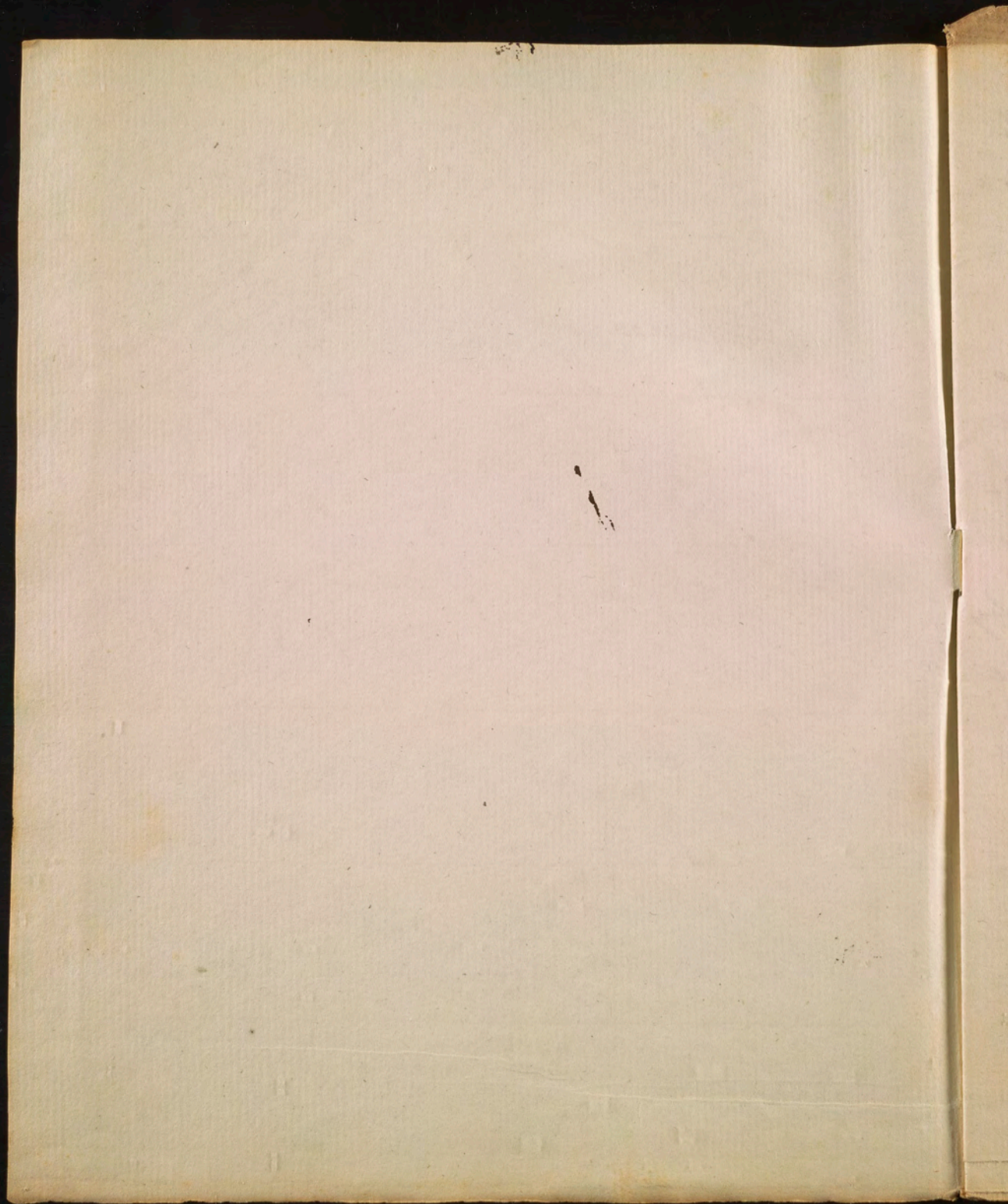
Urine of the Shunk often pervades whole
townships in the Country. Pectid odors often

cleave to woollen garments for several
days. This I once experienced after visiting

A

This sense, tho' more independant, than
that of taste, is not wholly so. It is tri-
-butory in a small degree to the eyes.

It is ~~tributory~~ much aided by sneezing
which discharges inspissated mucus,
invigorates the circulation in the nose,
and rouses ~~the~~ its nerves from an occa-
-sional torpor. Now sneezing is often
promoted by a sudden glare of light,
and hence we often find it induced by
it, particularly in the morning: a
time when sneezing is most necessary
to perform all the Uses that have been
ascribed to it. But there is another
proof of the Connection between the
Sense of Smelling: and the Organ of



visions, and that is strong odors force
tears from the eyes.

I shall now mention ~~the~~ ^{some peculiarities.}
~~the~~ ^{the} sense of smelling.

^{It} ~~It~~ affords some assistance to the sense
of taste in deciding upon the natural
Qualities of many substances. It is often
employed in judging of the quality of
wines. The Madras merchant whose
I before mentioned, could distinguish
the wine of every parish in the Island
only by its smell. It is from its lub-
-berness to the taste that we lose
^{our} ~~the~~ relish for many articles of our
food by ~~the~~ that form of a cold
which is called Coryza. —
2 It has sometimes been the means of

V 3 It is intimately connected with
the production of diseases. The bowels
have sometimes been moved by the
Smell of ~~Colic~~ *Colic* *agustida*, the Stomach
by the Smell of putrid matters & the lungs
by the ~~Smell~~ ^{Smell} of tobacco. But this ^{is} not
all - the brain - the nerves - the ~~Ves-~~
sels, and even the blood vessels have
all been thrown into commotion by
effluvia acting upon the ~~parts~~ sense
of smelling. ~~But~~ as a proof of this,
I shall hereafter mention that the
deleterious effects of some of those ef-
fluvia are prevented by closing the
nostrils. —

supporting life. Thunberg has often been
suspended by it. Lord Bacon mentions
an instance of a nobleman who lived
five days wholly upon the ^{smell of} ~~essence of~~
garlic and Onions. ✓

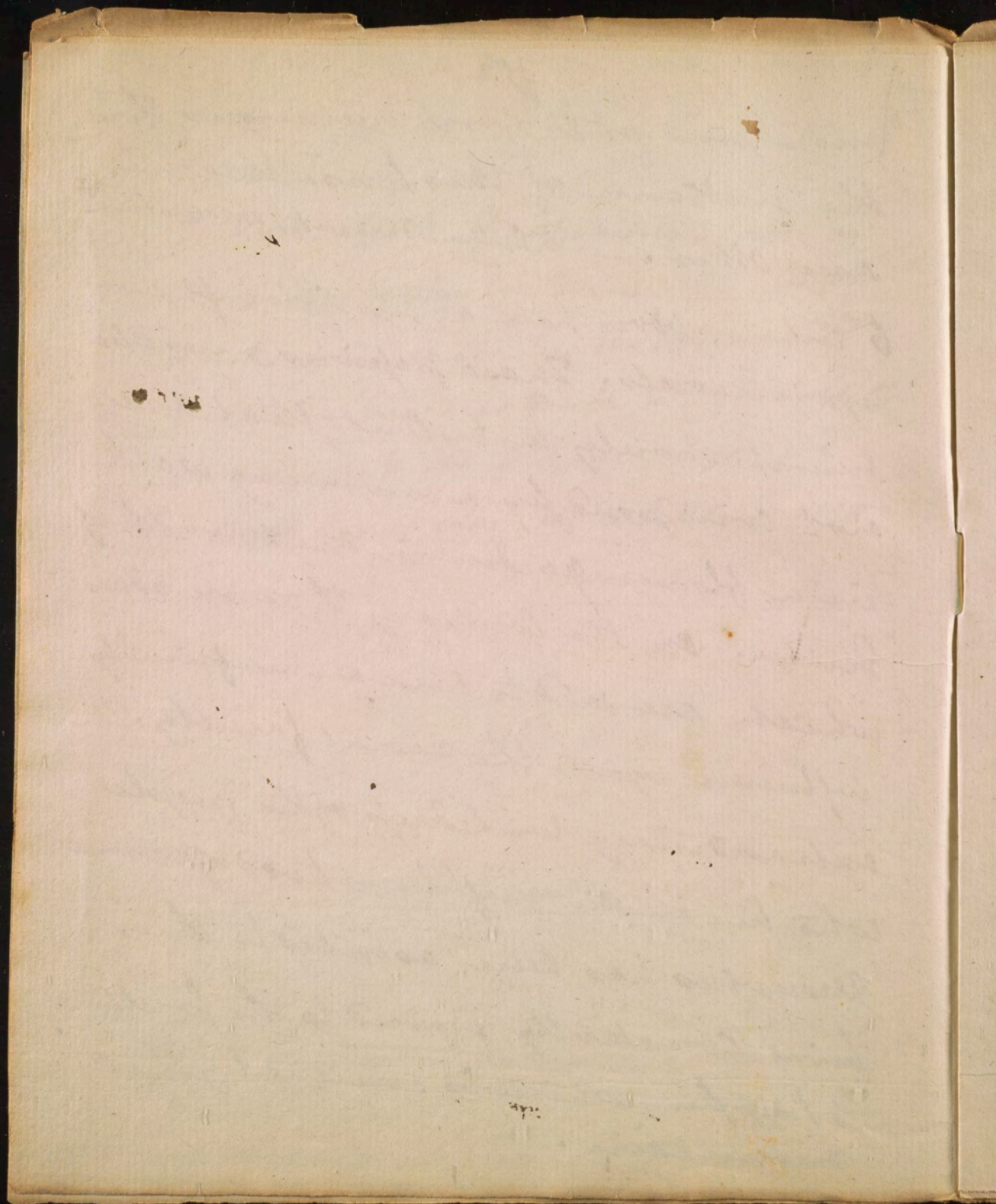
4 It has an intimate Connection with
medicine. Many remedies are applied
to the whole body thro' the medium of
this sense. These are chiefly volatile,
aromatic and fixed Substances. -

5 It is connected with the intellectual
powers of the mind particularly the
imagination. This is so obvious that
Ruisseau has pronounced the sense of
Smelling to be the sensitive organ of
that faculty of the mind. It is a fact,
that the Associations of ideas are

✓ It even affects the papiers. Dyers are
reviv'd ~~by acids~~ in dying red, the color
of which is made by the solution of
tin in nitric acid with a mixture of
lochimical, & ~~by~~ they are depressed
by ~~acid~~ dying blue, of which Indigo
is the principal ingredient.

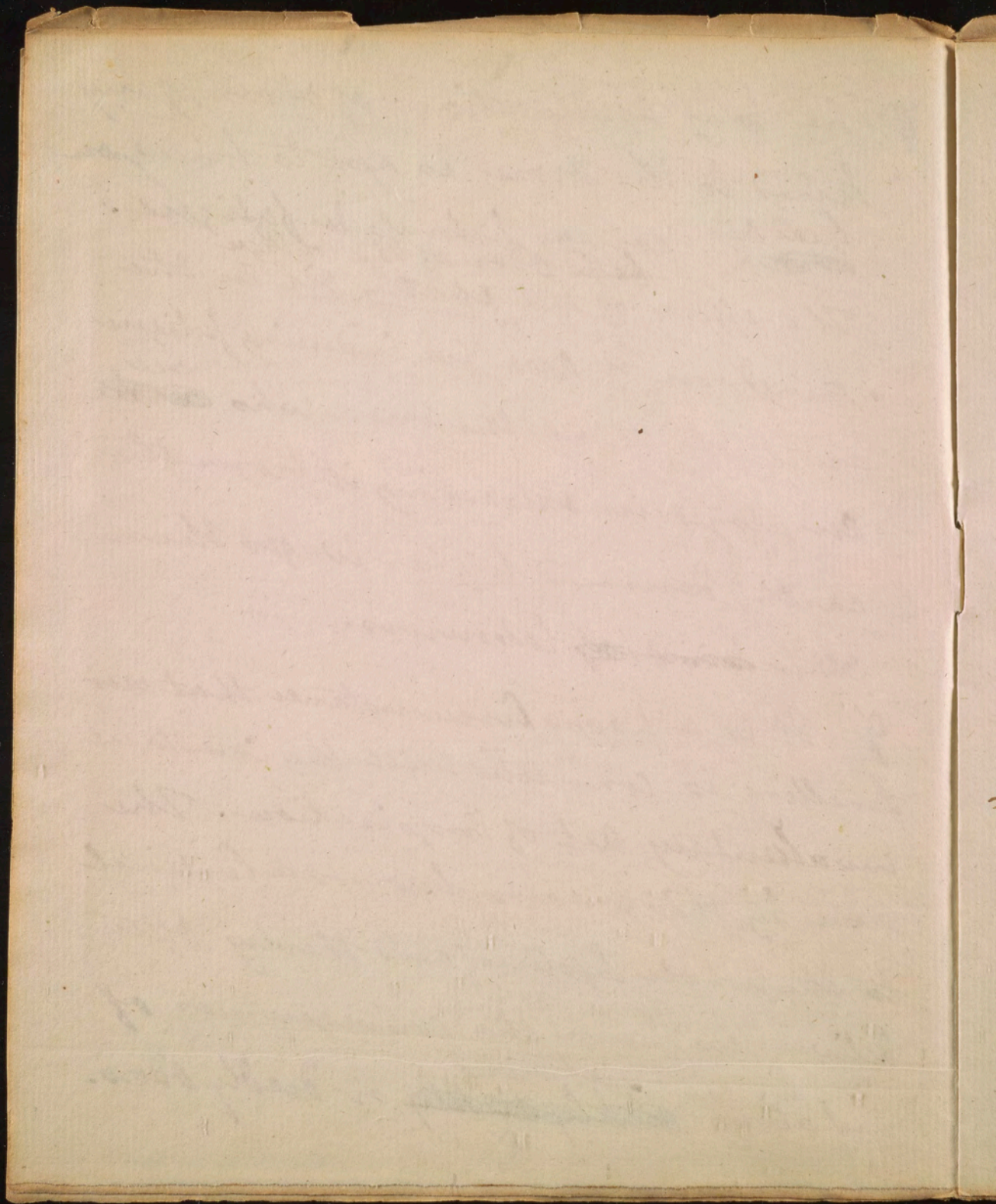
more prompt & more numerous than
the medium of this loose train
any other. — De Cullen; Duns; later cross miller.

Of certain odors have a sensible influence upon morals. These passions must be unconsciously turbulent, that are not composed by a morning walk in a flower garden in the month of June. On the contrary, there are odors which are said to have an unfriendly influence upon the moral faculty. The extraordinary wickedness of the people who live in the neighbourhood of Mount Vesuvius has been ascribed to their being constantly exposed to the smell of Sulphur which is emitted by that mountain.



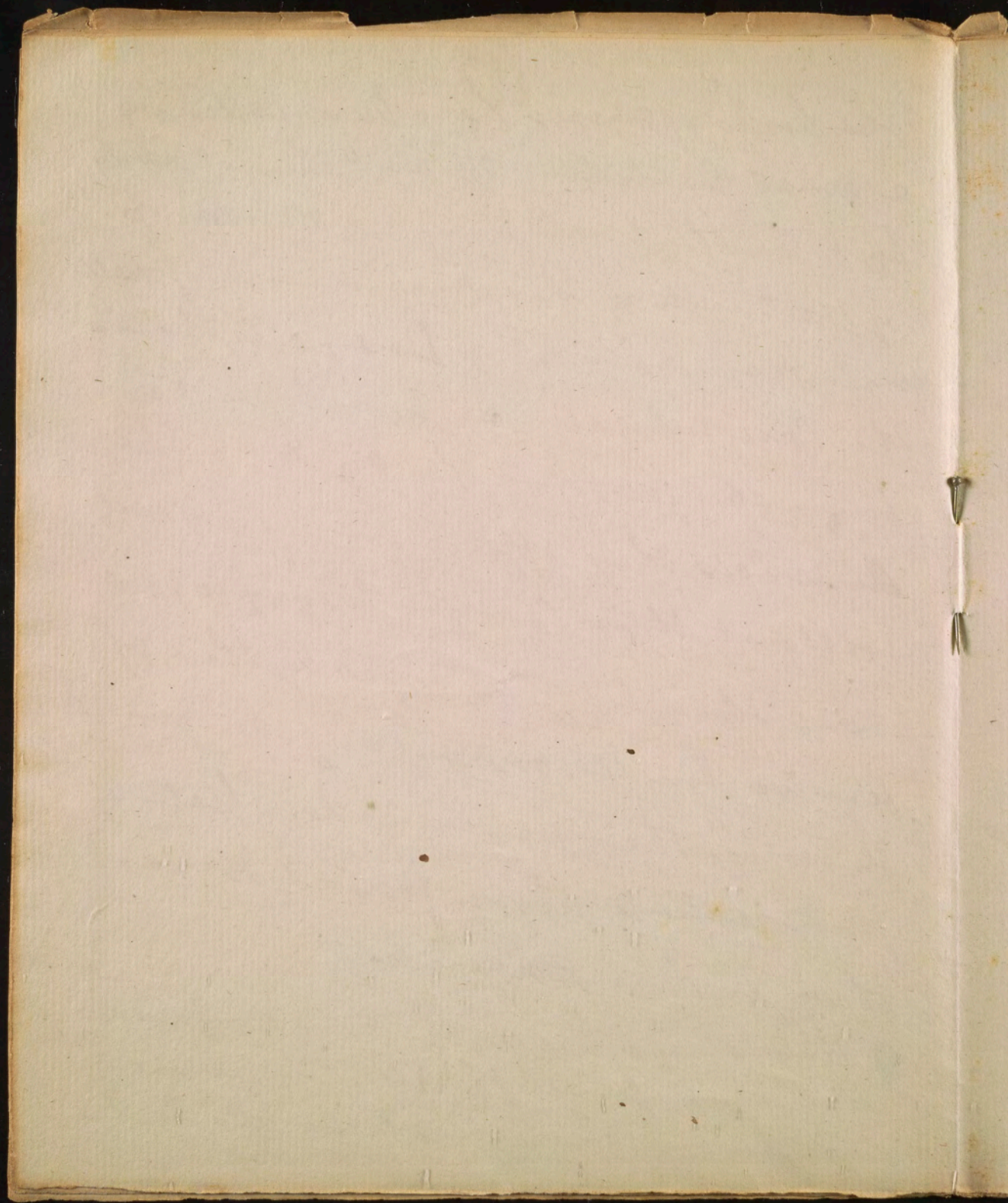
¶ The long application of odors of any
kind to the nose is apt to bring on
head ach, ~~cornea~~, sickness & fatigue.
~~cornea~~ ^{fatid odor of the or Pisu}
The effects of the earthy oil in the
kingdom of Ava in inducing fatigue
are such, that the men who ~~are~~
employed in extracting it from the
earth, demand higher wages than
other ~~kind of~~ labourers. —

¶ It is a happy circumstance that our
Smelling is connected with the constant
involuntary act of inspiration. The
nose by this means becomes a Sentinel
to the whole System, and thereby often
delivers us from the consequences of
inhaling ^{sickening} ~~and deadly~~ or deadly odors.



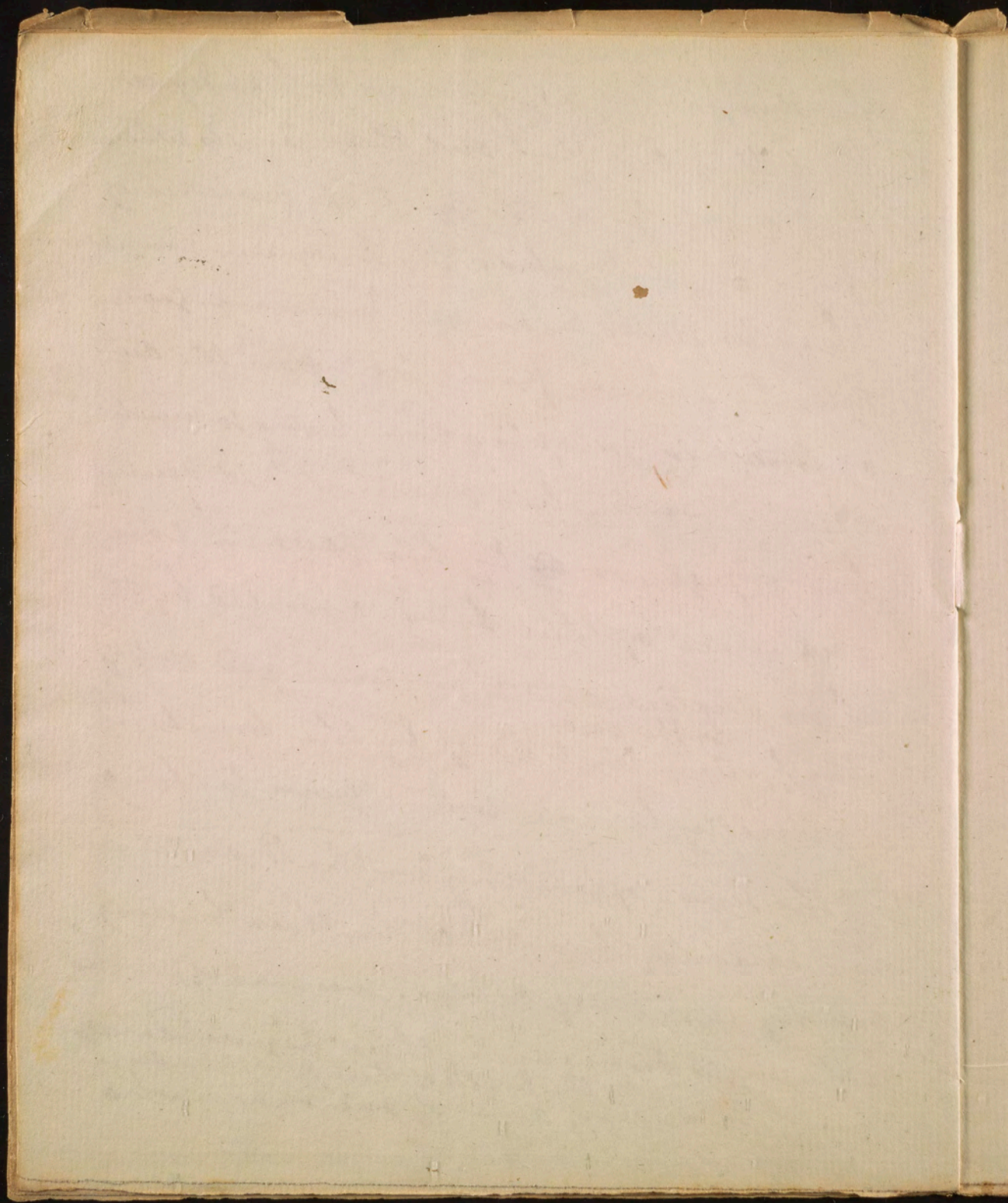
The books of Moses have been called by
a great military officer "the best orderly
book in the world." Among other proofs
of the truth of this encomium, I shall
mention a striking one, and that is
the care which the Jews took to
burn the fat, and the offals of the
Animals they offered in Sacrifices,
without their Camps thereby to pre-
vent their being annoyed by their of-
fensive smell, or affected by malignant
fevers by their passing into a state of
putrefaction above ground, & near to
their encampments.

Persons who live in the Country have a
more acute sense of smell than persons
who live in towns. Niebuhr tells us, that



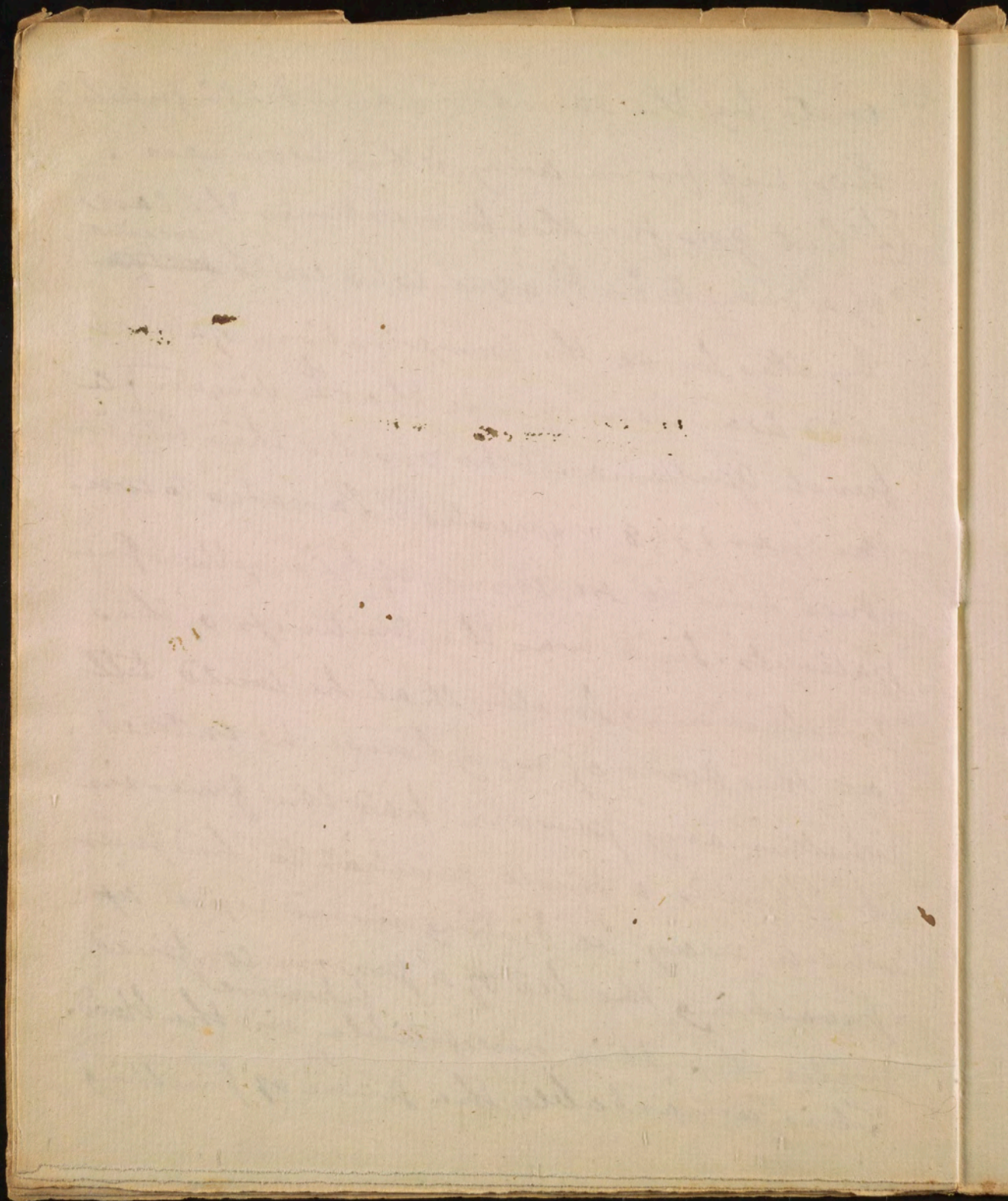
the Arabians possess it in so high degree
that they can find out their camels when
they escape from them to the distance of
four or five miles. The Bramins cannot
bear to stand near an European soon
after he arrives from sea upon the ac-
count of ~~the~~ his perspiration being so much
affected with his animal diet during
his voyage, or ~~of~~ by his pores in con-
sequence of this being absorbed by the
Lymphatics and thus conveyed out of
the system ^{by the pores} instead of by the bowels ^{as}.
generally become costive from fasting.

The sense of smelling in the Bramins
is rendered thus acute by their living
wholly upon vegetables. We read of persons
who could distinguish their acquaintances
from strangers ^{by the smell of their perspiration,} and of one man who



could by the same means distinguish
his wife from any other woman.

[Le Cat goes further & mentions the case
of a monk in Prague who could ^{perceive} ~~distinctly~~
by this sense the perspiration of a mar-
ried woman from that of a Virgin] a
French Gentleman who visited this city in
the year 1748 requested Dr Pascalis to con-
-duct him to see some of his yellow fever
patients. Such was the Acuteness of this
Gentleman's Smell, that he could tell
at the door of every house he entered,
whether any person had the fever in
it. There is a small puncher to this fever
which may be distinguished upon ap-
-proaching the bed of a person confined
with it. It is perceptible ^{likewise} in the blood.
It is remarkable the sense of smelling

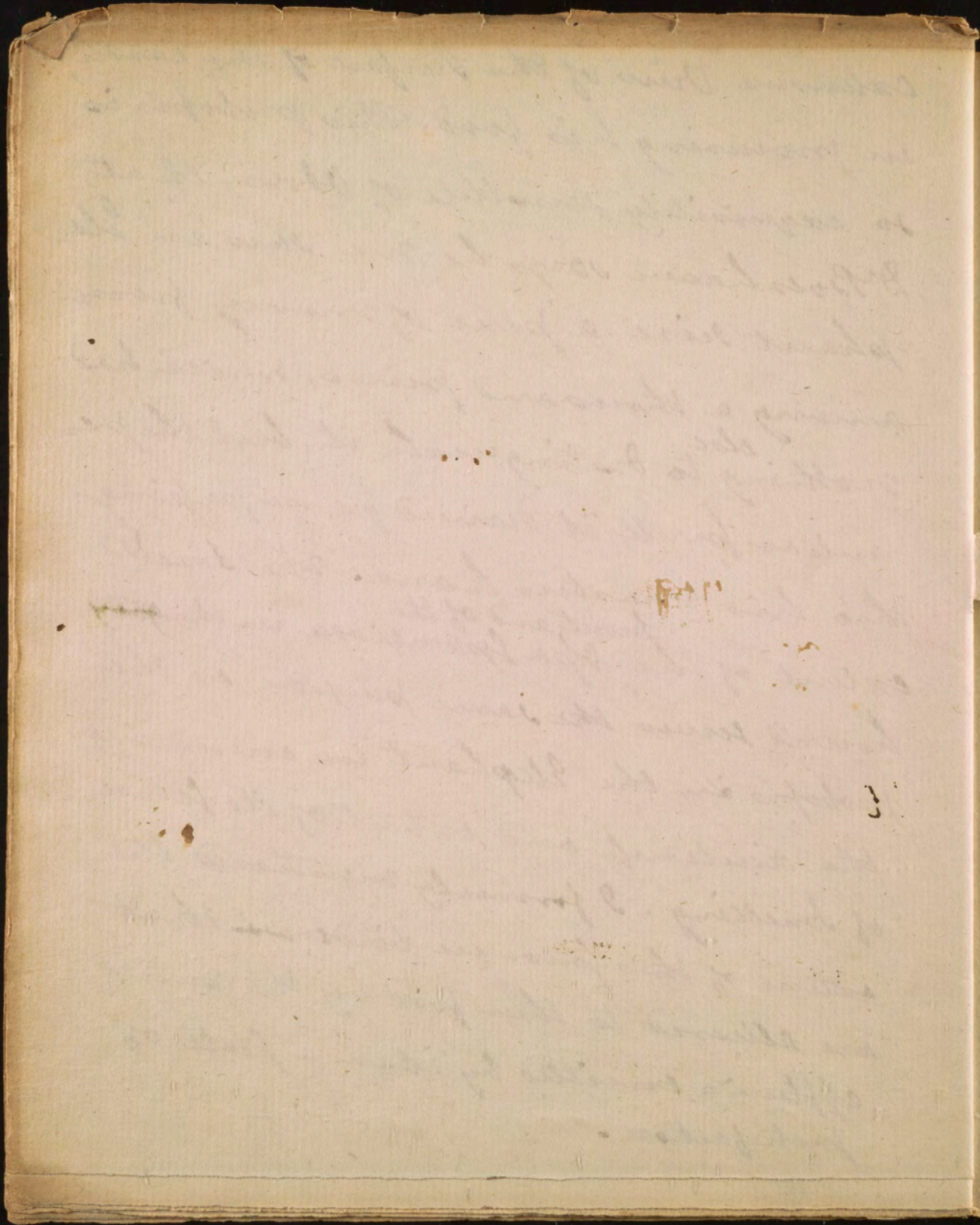


known ~~to be~~ exquisitely acute ~~in~~
About the Crises of several diseases whether
they end in life or Death. It is more
acute in certain animals than in man
for the necessary purpose in many of them
defending themselves from their enemies
~~of food~~ ~~obtaining~~ ~~food~~
The Dog is ~~preeminent~~ among the Quadrupeds
for the acuteness of this sense. He has
 lately given a new proof of it in Eng?
by distinguishing a living from a
dead Sheep under the snow. He howled
only over the Dead Sheep, but ~~scratched~~ ^{scratched} over
the living Ones, as if to save them. The
hog possesses this sense in a very acute
state likewise. To this he is indebted
for discovering under the earth, those
roots upon which he feeds. It is probable
he owes his wonderful Ability to find

[Faint, illegible handwriting, likely bleed-through from the reverse side of the page.]

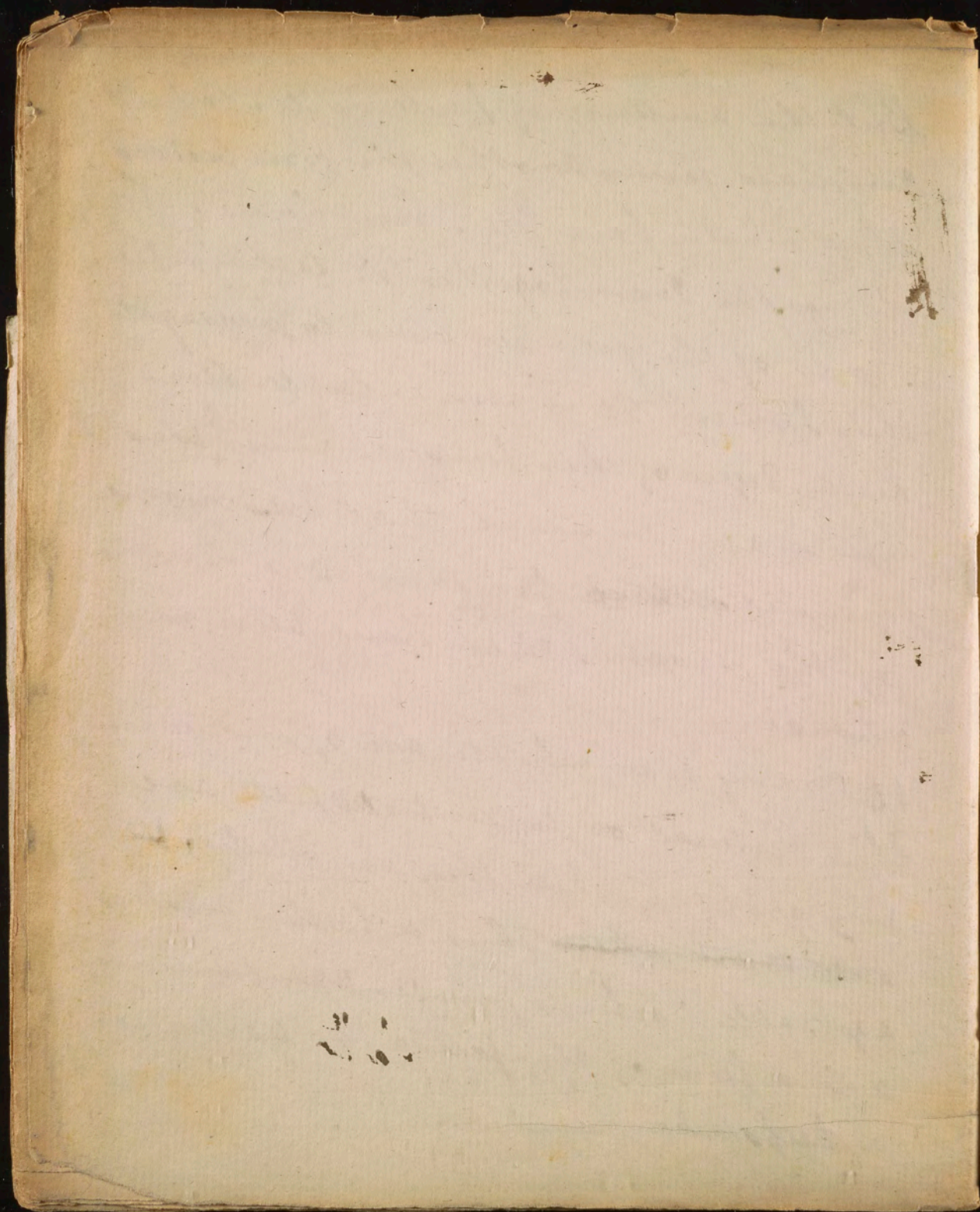
his way home, when lost, to the
Acuteness & perfection of this sense. The
deer often escapes his pursuer by the
Acuteness of his sense of Smelling-hence
our Indians when they hunt him,
never follow him with the wind. as
soon as they discover that they are ^{behind}
him by the recency of his tracks,
they alter their course, and either get
upon his flank, or in his front.
The Elephant likewise owes much to
this sense. His whole proboscis is a
production of Olfactory nerves, and it is
by means of this instrument which
he moves at his pleasure, that he
supplies the want of flexible joints,
and of eyes which command an

extensive View of the Surface of the earth,
in procuring his food. This proboscis is
so exquisitely sensible of Odors, that
Dr Boerhaave says he once saw an Ele-
phant seize a piece of money from
among a thousand pieces, which had
nothing ^{else} to distinguish it, but the pec-
-uliar smell it derived from passing
thro his masters hand. The sized
extent of the ^{snout and of the} Opa Spongiosa in the ~~dog~~
hound, serves the same purpose as the
proboscis in the Elephant in increasing
the acuteness and extent of its sense
of Smelling. I formerly mentioned the
extent of this sense in birds ~~at~~ that
are attracted to their food by the putrid
effluvia emitted by it in a state of
putrefaction.



But the acuteness of smell in certain animals serves another purpose besides those which have been mentioned. It brings the sexes together at certain seasons of the year in order to propagate their species. It is remarkable that an acute degree of this sense is never wasted upon any animal that does not require it ~~added~~ for some one or more of the purposes that have been mentioned.

Many Dogs which are offensive in their natural or concentrated state are very grateful when they are diluted, & ~~the~~ thus a little musk is agreeable in hair powder & perfumery, and a spice of Asafetida, or garlic in a beefsteak.



The Carcase of a putrefying whale in
 the neighbourhood of Edin². The great
 extent of putrid odour is still more
 evinced by certain birds being allured
 many hundred miles by them when
 emitted from Cassion. ^{to go below} I shall apply
 these facts when I come to treat of the
 nature and extent of those exhalations
 which produce bilious fevers. ^{none} ~~The~~
 of these fine particles of matter which
 thus affect the nose have ever been
 discovered by the microscope, or by
 any other instrument so as to be
 obvious to ~~any other~~ ^{the} sense of vision. ^{go to 349 -}

* The odor of the Sweet-scented Shrub of Carolina
 was perceived 120 miles from the shore of that
 State by the crew of a ship that arrived in Philadelphia
 from Canton in 1811 and the odor from the flowers
 on the banks of the Rio Janeiro was so intense as to
 destroy the hull of a ship 12 miles ^{off}.

